University of Helsinki, Institute of Behavioural Sciences,
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Yusuke Sakurai

UNDERSTANDING FACTORS CONTRIBUTING TO THE ACADEMIC ENGAGEMENT OF INTERNATIONAL UNIVERSITY STUDENTS

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Abstract

This doctoral thesis explored international university students' academic engagement and factors contributing to its enhancement and impediment. It revealed characteristics of international students' academic engagement by demonstrating similarities to and differences among various groups of students, including between international student sub-groups and between domestic and international students. The four studies that make up this thesis incorporated two survey datasets on students' learning experiences at the University of Helsinki – one set for international students at the Bachelor's and Master's level, and the other set for international and domestic doctoral students.

Studies I and II focused on different subgroups of international Bachelor's and Master's level students. Study I especially explored the associations of different dimensions of students' teaching-learning environment and academic engagement. The purposefulness of the course assignments and the relevance of learning contents were associated with adopting a deep approach to learning and being organised in their studies. Furthermore, the better the students' perception was of how well their courses were organised and learning contents were aligned with each other, the lower was their stress level. The research further attempted to show whether the association model differed between two major international student cohorts in the same educational context: European and Asian international students. Study I concluded that the impacts of dimensions of the teaching-learning environment on students' academic engagement did not differ between the student groups. However, the scores indicating students' cognitive engagement, including the surface approach to learning and organised studying for the Asian students, were statistically significantly higher than those of the European students, but the sizes of the differences were considered to be very small. Study II further narrowed the scope by analysing Chinese students' cognitive engagement vis-à-vis the other international students, with attention given to the students' survey extreme response styles. The results suggested that the Chinese students used the surface approach more than the other students with a small amount of difference, but these results warrant additional attention when the students' extreme response

styles are taken into account. Furthermore, the study showed that the Chinese students applied the deep approach and organised study as much as the other students. The Chinese students might take a deep approach and organise their studies even more if the levels of their extreme response styles were equivalent to that of the other students.

Studies III and IV shed light on factors associated with international doctoral students' academic engagement in their studies. Study III used both quantitative measures and students' open-ended answers about their academic experiences. It addressed influential factors in their experiences of satisfaction with their studies and thoughts about abandoning their programmes. Both positive and negative factors in research supervision and positive factors in the personal domain were significantly associated with student satisfaction. The doctoral students' levels of academic satisfaction were lower in the Faculty of Arts, and higher among those who had not yet decided on the format of their doctoral thesis: monograph or article-based thesis. In addition, the results suggested that students who had problems in supervision and department-related matters, including financing, research facilities and administrative responsibilities, were more prone to have considered dropping out of their studies. Study IV examined the association of doctoral students' motivation to undertake doctoral studies and the levels of their emotional engagement. It demonstrated the differences and similarities of the association between international and domestic doctoral students by integrating a data-driven statistical approach. The results suggested that students who started their doctoral studies with low motivation to extend their career prospects were significantly less satisfied. More international students than domestic students were classified in the cluster of students who began their studies hoping to develop their career prospects with moderate levels of research interest.

This thesis contributes to our knowledge of the characteristics of international students' academic engagement by demonstrating that students studying in the same educational context appeared to engage in their studies in a fairly comparable way. The thesis stresses the importance for university teachers to be sensitive about their own understanding of particular groups of students in the current, highly diversifying atmosphere of tertiary education. The comparison of different groups with the use of effect sizes consistently showed only very small or even negligible differences. Therefore, this thesis calls more attention to the practical size of differences between different cohorts, which have often been reported in previous comparative studies, but without a great deal of interpretation. Finally, the four studies could not demonstrate links between the students' positive engagement in their studies and their academic peers. Hence, this thesis argues that international students may not take sufficient advantage of peer support and collaborative synergy during their university studies.

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KANSAINVÄLISTEN YLIOPISTO-OPISKELIJOIDEN OPISKELUUN KIINNITTYMINEN

Tiivistelmä

Tässä väitöskirjatutkimuksessa tutkittiin kansainvälisten yliopisto-opiskelijoiden perus- ja jatko-opintoihin sitoutumista sekä sitoutumiseen liittyviä estäviä ja edistäviä tekijöitä. Väitöskirjatutkimuksessa selvitettiin sitoutumisen ominaispiirteitä havainnollistamalla samankaltaisuuksia ja eroja sekä kansainvälisten opiskelijaryhmien että suomalaisten ja kansainvälisten opiskelijaryhmien välillä. Osatutkimuksissa selvitettiin opiskelijoiden oppimiskokemuksia Helsingin yliopistossa kahden kyselyaineiston avulla. Osatutkimusten I ja II aineisto kerättiin kandidaatin ja maisterin tutkintoa suorittavilta kansainvälisiltä opiskelijoilta. Osatutkimusten III ja IV aineisto kerättiin tohtorintutkintoa suorittavilta suomalaisilta ja kansainvälisiltä tohtoriopiskelijoilta.

Osatutkimukset I ja II tutkivat kansainvälisiä kandidaatin ja maisterin tutkintoa suorittavia opiskelijoita. Osatutkimuksessa I tutkittiin erilaisten opetus- ja oppimisympäristön ulottuvuuksien yhteyttä opintoihin sitoutumiseen. Lisäksi osatutkimuksessa selvitettiin onko kahden suurimman kansainvälisen opiskelijaryhmän, eurooppalaisten ja aasialaisten, välillä eroja. Tulokset osoittivat, että ryhmien välillä ei ollut eroja opetus- ja oppimisympäristön yhteydessä opintoihin sitoutumiseen. Tulokset kuitenkin osoittivat, että aasialaisten opiskelijoiden kognitiivinen sitoutuminen oli pintasuuntautuneen lähestymistavan ja suunnitelmallisen opiskelun osalta vahvempaa kuin eurooppalaisten opiskelijoiden. Erot ryhmien välillä olivat kuitenkin pieniä. Osatutkimuksessa II tutkittiin tarkemmin kiinalaisten opiskelijoiden kognitiivista sitoutumista verrattuna muihin kansainvälisiin opiskelijoihin kiinnittämällä huomiota opiskelijoiden vastaamistyyleihin. Tulokset osoittivat, että kiinalaiset opiskelijat saivat korkeampia pistemääriä pintasuuntautuneessa lähestymistavassa kuin muut kansainväliset opiskelijat, mutta ryhmien väliset erot olivat pieniä. Tuloksia tulkittaessa täytyy kuitenkin huomioida opiskelijoiden erilainen vastaustyyli. Tulokset osoittivat myös, että kiinalaiset opiskelijat olivat yhtä syväsuuntautuneita ja suunnitelmallisia opiskelussaan kuin muut kansainväliset opiskelijat. Kiinalaiset opiskelijat voisivat olla vielä enemmän syväsuuntautuneita ja suunnitelmallisia opiskelussa, jos opiskelijoiden erilainen vastaustyyli otetaan huomioon.

Osatutkimus III ja IV tutkivat kansainvälisten tohtoriopiskelijoiden jatko-opintoihin sitoutumiseen liittyviä tekijöitä. Osatutkimuksessa III tutkittiin opis-

kelijoiden kokemuksia yhdistämällä kvantitatiivista ja kvalitatiivista aineistoa. Osatutkimus analysoi opiskelijoiden kokemuksia jatko-opintojen tyytyväisyyteen liittyvistä tekijöistä ja ajatuksia opintojen lopettamisesta. Tulokset osoittivat, että tyytyväisyys opinnoissa oli yhteydessä positiivisiin ja negatiivisiin kokemuksiin tutkimusprosessin ohjauksesta sekä positiivisiin kokemuksiin henkilökohtaisesta elämänpiiristä. Tulokset osoittivat myös, että humanistisen tiedekunnan opiskelijat olivat vähiten tyytyväisiä jatko-opintoihinsa. Tyytyväisimpiä olivat opiskelijat, jotka eivät olleet vielä päättäneet väitöskirjan muotoa; monografia vai artikkeliväitöskirja. Lisäksi tulokset osoittivat, että opintojen keskeyttämistä olivat useammin ajatelleet opiskelijat, joilla oli vaikeuksia väitöskirjan ohjauksessa sekä laitokseen liittyvissä tekijöissä, kuten rahoituksessa, tutkimuksen käytännön järjestelyissä sekä hallinnollisissa tehtävissä. Osatutkimuksessa IV tutkittiin tohtoriopiskelijoiden jatko-opintojen aloittamiseen liittyvän motivaation ja emotionaalisen sitoutumisen välistä yhteyttä. Tilastollisen analyysin tulokset osoittivat eroja ja yhtäläisyyksiä kansainvälisten ja suomalaisten tohtoriopiskelijoiden välillä. Tulokset osoittivat, että opintojen alun heikko motivaatio uranäkymien laajentamiseen oli yhteydessä vähäisempään tyytyväisyyteen opintoihin liittyen. Kansainvälisillä opiskelijoilla motivaatio jatko-opintojen aloittamiseen liittyi suomalaisopiskelijoita useammin uramahdollisuuksien kehittämiseen.

Väitöskirjatutkimus tuotti uutta ymmärrystä yliopisto-opiskelijoiden perus- ja jatko-opintoihin sitoutumiseen liittyvistä tekijöistä osoittamalla, että samassa opetus-oppimisympäristössä opiskelevat opiskelijat sitoutuivat perus- ja jatko-opintoihinsa lähes samalla tavalla. Väitöskirjatutkimus painottaa, että yliopisto-opettajien on tärkeää tiedostaa ja kehittää ymmärrystään eri kansallisuuksia edustavien opiskelijaryhmien oppimisesta nykyisessä erittäin monipuolistuvassa kolmannen asteen koulutuksessa. Tutkittaessa ryhmien välisiä eroja tulokset osoittivat, että ryhmien väliset tilastollisesti merkitsevät erot olivat kuitenkin pieniä tai lähes merkityksettömiä, kun tarkasteltiin vaikutuksien suuruuksia. Tulosten perusteella vaikutuksien suuruuksiin on tärkeä kiinnittää enemmän huomiota, koska aikaisemmissa vertailevissa tutkimuksissa niitä ei ole juurikaan tutkittu tarkemmin. Väitöskirjatutkimuksessa ei havaittu yhteyttä opiskelijoiden opintoihin sitoutumisen ja vertaisopiskelijoiden antaman tuen välillä. Väitöskirjatutkimuksessa esitetään, että kansainväliset opiskelijat eivät välttämättä hyödynnä parhaalla mahdollisella tavalla vertaistukea ja yhteistoiminnallisen oppimisen mahdollisuuksia opintoihinsa sitoutumisessa.

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私が学部課程、修士課程の卒業式のどちらへも参加できなかったこともあり、両親にもこれまで学位授与式に参加してもらうことができませんでしたが、ようやく博士課程の一連の修了のイベントには参加してもらうことができそうです。長い間お待たせしました。

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Helsinki, November, 2014

Yusuke Sakurai

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LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following publications:

I Sakurai, Y., Parpala, A., Pyhältö, K., & Lindblom-Ylänne, S. (2014). Engagement in learning: a comparison between Asian and European international university students. *Compare: A Journal of Comparative and International Education*, 1-24. doi: 10.1080/03057925.2013.866837

II Sakurai, Y., Pyhältö, K., & Lindblom-Ylänne, S. (2014). Are Chinese university students more likely to exhibit a Surface approach to learning than the other international students in Finland? *Journal of Research in International Education*, 13(2), 135-148. doi: 10.1177/1475240914540119

III Sakurai, Y., Pyhältö, K., & Lindblom-Ylänne, S. (2012). Factors affecting international doctoral students' academic engagement, satisfaction with their studies, and dropping out. *International Journal for Researcher Development,* 3(2), 99-117. doi: 10.1108/17597511311316964

IV Sakurai, Y., Vekkaila, J., & Pyhältö, K. (under review). More or less engaged in doctoral studies? Domestic and international students' satisfaction and motivation for launching doctoral studies.

The studies were funded by the Heiwa Nakajima Foundation (a two-year grant).
The publications are referred to in the text by their roman numerals (Studies I-IV).

1 INTRODUCTION

The academic engagement of students has become a slogan among higher educational institutions as one indicator of institutional educational excellence and effectiveness (Axelson & Flick, 2011; Zhao & Kuh, 2004). A close look at students' academic engagement gives useful insights for formulating educational policies in higher education that will alter the university culture and enhance students' learning outcomes (Kuh, 2001). This trend has developed as a result of researchers' and university leaders' increasing attention to student-centredness in higher educational pedagogy and development (Harrison, 2013; McCormick et al., 2013). Based on the Bologna Declaration, European universities have been encouraged to develop a quality assurance system, which would help them improve their educational practices. Many universities today take systematic and comprehensible measures to demonstrate their efforts in support of student learning (Kuh, 2009). University leaders take into consideration various indicators of university quality in order to allocate their resources effectively in facilitating students' success (Kuh, 2009).

Among these indicators, students' feedback on their university experiences is considered a valuable source for enhancing pedagogical practices (Greere & Riley, 2014). The University of Helsinki has stressed in its strategy plan that students' feedback is used to obtain insights to promote learning and study (University of Helsinki, 2012). The university has thus developed a systematic and comprehensive structure to assess students' learning experiences in the teaching-learning environment for the enhancement of the university's pedagogical quality (Parpala & Lindblom-Ylänne, 2012).

Quality assurance activities for doctoral education have, in contrast, lagged behind internationally, relatively speaking (Byrne et al., 2013; Mitchell & Carroll, 2008), although universities have a somewhat long tradition of research evaluations. Even though the principles of quality assurance for accountability and transparency of educational practices generally underlie the Bachelor's and Master's levels as well as the doctoral level of education, the initiatives for quality assurance and reforms of doctoral education have followed different paths from the usual trend seen at the undergraduate level (Byrne et al., 2013). This is because doctoral education has several distinctive features such as the characteristics of research intensiveness, students' developmental processes towards research-related careers and project-based research activities. Moreover, a significant number of doctoral students suffer from substantial distress and ill-being (Gardner, 2007; Stubb et al., 2011). Exceptionally high attrition rates have also been a problem (Bair & Haworth, 2005; Golde, 2005).

Successful completion of a degree has been taken up as important for universities because time, effort and financial costs invested by doctoral students and universities are enormous (Bourke et al., 2005). Undesired dropouts can have devastating effects on students' future life course (Gardner, 2008). Therefore, there is an urgent call to help students remain positively engaged in their studies in their scholarly environment (Pontius & Harper, 2006). The University of Helsinki conducted an extensive evaluation of research and doctoral training in the years 2010-12 (Saari & Moilanen, 2012). In this project the university collected doctoral students' feedback on their academic experiences, which two of the studies in this thesis adopted as a data source.

At any degree level, students are encouraged to take full advantage of a university's resources so that they can be involved emotionally, cognitively and behaviourally in the academic opportunities offered by the university. An integrative concept such as students' academic engagement is therefore needed to explore the students' involvement in academic activities. It is also important to draw empirical evidence and educational theories from the previous literature into the overarching academic engagement framework to untangle the complexities of the dynamics between students and various factors in their learning environment.

1.1 Student mobility in Europe

International students have become one of the largest and most conspicuous groups in institutions of higher education worldwide (Mittal & Wieling, 2006; Ritzen & Marconi, 2011; Sam, 2001; Wachter, 2008). In 2010, about 3.6 million students were enrolled in foreign tertiary education worldwide (UNESCO Institute for Statistics, 2012). The number of international students is expected to continue to grow (Ritzen & Marconi, 2011). The competition among OECD countries in attracting talented students from abroad has become fierce (Ritzen & Marconi, 2011). Motivated by intellectual, economic and cultural factors (Salmi, 2009; Singh, 2009; Zhao et al., 2005; Zhao & Wildemeersch, 2008), European universities share a common agenda to attract more talented students and researchers from abroad (De Wit, 2010; Zhao & Wildemeersch, 2008). The largest nationality represented among international students worldwide was mainland China, which accounts for 15.8% of the entire international student cohort (UNESCO Institute for Statistics, 2012); mainland Chinese were also the largest national student group among European countries (Wachter, 2008).

Finland has likewise attempted to increase the internationalisation of higher education among students, teachers and researchers (Finnish Ministry of Education, 2009). Finnish universities started offering programmes taught in English earlier than other non-English speaking countries in Europe (Coleman,

2006). The number of foreign students has also risen steadily in Finland. Approximately 14,000 students came to Finland for higher education study in 2010. The figure has doubled in the past ten years: there were only 7,361 students in 2004 (UNESCO Institute for Statistics, 2006, 2012).

The University of Helsinki clearly stated in its strategy plan that it would actively recruit talented students and facilitate their integration into the university community (University of Helsinki, 2012). The strategy plan aims to increase international students up to 15% of the total number of Master's students and 25% of new doctoral students. In the 2013-14 academic year, 1,981 international students were enrolled in Finland's universities and pursuing degrees (this figure does not include short-term exchange students). The percentage of Master's level students was the largest (42.7%), followed by doctoral (37.5%) and Bachelor's students (13.2%) (Table 1). There were more female students (54.9%) than male (45.1%). The largest number of international students was registered in the Faculty of Arts (20.3%), followed by students in the Faculty of Science (16.8%) and Agriculture and Forestry Sciences (14.8%). The majority of the students were from European countries (50.7%) followed by Asian countries (30.1%) in 2012-13. China (14.3%) sent the largest number of students to the University of Helsinki, followed by Russia (13.2%), Estonia (8.0%), Germany (5.0%) and the USA (3.5%). Most students in Finnish university programmes were exempt from tuition fees, even those for non-EU students.

Table 1. Information on international students from the University Register Office record at the University of Helsinki

		%
Degree	Bachelor's	13.2
	Master's	42.7
	Doctoral	37.5
	Other	6.7
Gender	Female	54.9
	Male	45.1
Faculty	Agriculture and Forestry	14.8
	Arts	20.3
	Behavioural Sciences	2.8
	Biological and Environmental Sciences	10.4
	Law	3.6
	Medicine	13.3
	Pharmacy	1.6
	Science	16.8
	Social Sciences	13.4
	Theology	1.5
	Veterinary Medicine	1.5
Country of origin (2012-2013)	Africa	5.0
	Asia	30.1
	Europe	50.7
	Latin American and the Caribbean	3.8
	North America	4.9
	Oceania	0.4
	Unknown	0.9
	Countries which less than five students originated from (information not available due to privacy reasons)	4.2

1.2 Intersection of faculty development and international students

Traditionally, major research foci of faculty development and students' academic engagement have seldom been on international students. However, international students have become important factors in higher education today (Zhao et al., 2005), and increasing attention has been paid to their learning for the following reasons: Firstly, high-quality learning opportunities and a university's reputation are among the major reasons why international students choose an academic destination (Li & Bray, 2007; Ritzen & Marconi, 2011). Therefore, it is important for universities to assess whether students moving from abroad engage effectively in learning and are satisfied with their experiences at their host institutions (Hu et al., 2011). Information about students' academic engagement in their studies as an indicator of effective educational practices is useful for

prospective students seeking a better learning destination (Asthana & Biggs, 2007). Rather than promotional activities by university recruitment offices, previous research emphasised a more influential role on the part of alumni graduates in the choice of a study abroad programme by prospective international students (Ramachandran, 2011).

Secondly, the substantial benefits of inviting international students have been recognised among universities wishing to enhance their competitiveness and the attractiveness of their academic profiles. International students bring new experiences and perspectives into university learning communities, which in turn can generate increased creativity and innovation (Ritzen & Marconi, 2011; Salmi, 2009). Moreover, the importance of researchers of high international standing, including doctoral students, has also been acknowledged, as these individuals exert positive influence on intellectual networking within their home scholarly communities (Chang & Kanno, 2010; Fuller et al., 2005; Singh, 2009). International students may help research to diversify and to hybridise so that the research outcomes can be more meaningfully contextualised in a broader arena (Singh, 2009). These positive changes in university scholarly communities can further enhance the attractiveness of the universities, and thereby prevent brain drain (Geraldo et al., 2011).

Thirdly, in the long run, international students function as "good-will ambassadors" (Ramachandran, 2011, p. 218), regardless of whether they return home or stay in their host countries after they have completed their studies. If they perceive that they have received a good education and achieved success in their studies, they will continuously advertise the good practices of the university and their host countries (Ramachandran, 2011).

Lastly, teachers' biased conceptions of particular students may trigger a poor educational design, which can result in poor quality of the students' learning (McKay and Kember, 1997). The term "self-fulfilling prophecy" was coined by Merton (1968): individuals act in a way that actualizes their expectations. Accordingly, it is important for university teachers to be cognisant of their own understanding of students' learning experiences based on empirical evidence and to update their understanding (Marambe et al., 2012).

The increasing number of international students does not always result in high quality learning experiences (Zhao et al., 2005). Indeed, it is necessary for all relevant university parties, particularly students and teachers, to commit themselves to the success and positive experiences of international students' learning (Geraldo et al., 2011). Researchers have reported that university teachers and researchers are willing to support the group of international students (Goode, 2007; Mittal & Wieling, 2006; Ramachandran, 2011). In this positive atmosphere, empirical research evidence on what factors can enhance international students' engagement in their studies is valuable in order to

allocate university teachers' time and effort effectively (Tavakol & Dennick, 2010). To do so efficiently, understanding factors contributing to international students' academic engagement in their new teaching-learning environment is high on the agenda.

1.3 International students' challenges in higher education

Many studies have reported the challenges to international students, which can diminish the quality of learning in their study abroad experiences. The students experience fear of failure and lack of confidence in the new learning environment (Mayya et al., 2002). Unfamiliar languages of instruction and linguistic features are the usual sources of difficulties (Malau-Aduli, 2011; Mayya et al., 2002). The students also come across new academic practices, such as different genres of written assignments and discussion activities (Campbell & Li, 2008). The students also have to get settled in their host living environment (Mehdizadeh & Scott, 2005). They may face demotivating experiences as a result of discrimination while living in a different culture (Grayson, 2008). As a result, more international students are likely to perceive that they are having academic difficulties (Grayson, 2008). They also tend to recognise that they receive less academic help from classmates and faculty than their domestic counterparts. Accordingly, international students are often driven to solve their problems by themselves (Grayson, 2008).

Doctoral students have also reported facing difficulties similar to those experienced by Bachelor's and Master's level students (Evans & Stevenson, 2011; Ku et al., 2008; Le & Gardner, 2010; Mittal & Wieling, 2006). In addition, many international doctoral students feel marginalised by insufficient office space, access to facilities, department seminars and social relationships with university members and networks (Chang & Kanno, 2010; Deem & Brehony, 2000). International students are seldom responsible for the temporary academic duties of teaching that professors can assign (Nerad and Stewart 1991), which may limit their development as full-fledged researchers. The students themselves are also less likely to believe that they can contribute to their local scholarly community (Leonard, 2010). In addition to these academic dimensions, international doctoral students manage their private and social lives very poorly during their studies (Leonard, 2010). Deem and Brehony (2000) found it problematic that domestic students are unaware of the demanding situations that international doctoral students face. There seems to be an accumulation of studies on the difficulties faced by international students in academic environments. However, the extent to which students encounter these difficulties and the factors associated with their academic engagement have not been carefully examined.

2 THEORETICAL FRAMEWORK

2.1 Academic engagement

Academic engagement refers to students' active involvement in learning activities offered by universities (McCormick et al., 2013) and in the learning opportunities available in their academic environments (Vekkaila, 2014). Students' academic engagement is a continuous dynamic and iterative process, which helps or hinders students from engaging in further studies (Harrison, 2013). Therefore, academic engagement can be considered as both process and outcome within educational settings (Kahu, 2013). At the same time, knowledge, skills and competences learned or achieved through academic engagement can be considered as proximal academic outcomes rather than academic engagement in studying (Kahu, 2013). Further distal academic outcomes include individual students' retention in universities, employment success and lifelong learning (Kahu, 2013).

Engaged academic experiences are characterised by positive and fulfilling encounters, including vigour, dedication and absorption (Schaufeli, Martínez, et al., 2002, p. 74; Vekkaila, 2014). Students full of vigour are energetic, mentally resilient and willing to invest their efforts in their academic work. Dedication, on the other hand, is characterised as finding the studies important, meaningful, motivating, inspiring and challenging. Absorption is a mental state in which students concentrate on and are immersed in their studies, and therefore, they feel that they become captive in their studies and time goes by quickly (Schaufeli, Martínez, et al., 2002).

Academic engagement is often linked with good learning outcomes (Fredricks et al., 2004; Hughes & Pace, 2003; Schaufeli, Martínez, et al., 2002). For example, high levels of academic engagement were associated with academic outcomes, such as university persistence (Hughes & Pace, 2003) and grade point average (GPA) (Carini et al., 2006). Meanwhile, students experiencing the lack of such a positive state experience feelings of exhaustion, cynicism and reduced efficacy (Schaufeli, Martínez, et al., 2002). Doctoral students in particular may demonstrate high levels of attrition (Ali & Kohun, 2006; Gardner, 2007).

2.2 Academic engagement as a multidimensional construct

The literature has often referred to academic engagement as a multidimensional construct that entails three major components: *behavioural*, *cognitive* and *emotional* engagement (Axelson & Flick, 2011; Fredricks et al., 2004; Jimerson et al., 2003; Kahu, 2013). Students' observable participation in, and contribution

to, various academic activities constitutes the behavioural dimension, such as on-task behaviour, class discussion, library resource use and interaction with faculty (Fredricks et al., 2004; McCormick et al., 2013). Cognitive engagement on the other hand refers to students' psychological efforts and investment in understanding the contents of learning, acquiring target skills and implementing self-regulated strategies (Fredricks et al., 2004). It includes students' psychological investment in learning, use of learning strategies, regulation of learning and value judgements in learning (Fredricks et al., 2004). Emotional engagement in academic activities includes students' feelings about their educational institutions, teachers and peers, affective reactions in educational tasks, and a sense of belonging to their institutions (Fredricks et al., 2004; Mahatmya et al., 2012).

Prior large-scale studies (e.g., National Survey of Student Engagement, 2013) have focused heavily on the behavioural dimension of students' academic engagement (Axelson & Flick, 2011; McCormick et al., 2013). Several other studies of engagement in pre-tertiary education have comprehensively addressed three dimensions of student engagement (Archambault et al., 2009; Kong et al., 2003; Wang & Holcombe, 2010). Others have focused on emotional and cognitive domains of the engagement and examined the construct validity of the domains (Appleton et al., 2006). However, relatively less attention has been paid to students' emotional and cognitive engagement in higher education research. Consequently, this doctoral thesis focuses on students' cognitive and emotional dimensions of academic engagement in university studies.

2.3 Cognitive engagement in academic activities

A framework of student cognitive engagement can be complemented by a more extensive and well-researched concept of approaches to learning and studying. Approaches to learning are qualitatively different ways of processing learning materials according to individuals' perception of their contexts and the tasks at hand along with their own motives and preferences. Therefore, students' cognitive engagement in their studies can be explored by analysing the approaches to learning and studying. Such approaches have been used as measures of students' cognitive engagement (e.g., Kong et al., 2003; Miller et al., 1996; Richardson & Newby, 2006). Kahu (2013) and McCormick et al. (2013) also suggest that the conceptualisation of cognitive engagement resembles the components of approaches to learning and studying, such as the deep approach to learning and self-regulatory learning. Students achieve learning outcomes partly by engaging cognitively in their studies, for instance, adopting approaches to learning and studying according to the nature of their teaching-learning

environment, educational tasks and their own learning styles and objectives (Wierstra et al., 2003).

The literature on the approaches to learning and studying has identified two major, qualitatively different approaches: deep and surface approaches (Biggs & Tang, 2007; Case & Marshall, 2009; Marton & Säljö, 1976). The deep approach emphasises students' understanding of the subject matter and the development of meanings (Biggs & Tang, 2007; Entwistle et al., 2003). The surface approach to learning involves students' memorisation and reproduction of learning content with little effort at understanding. Another element of students' studying, namely organised study, often accompanies these two approaches. It consists of strategies for concentrating, as well as management of time and effort in order to achieve learning goals (Entwistle & McCune, 2004).

Students' use of the approaches to learning is important for the quality of their learning outcomes (Ellis et al., 2008). Many studies have reported that students' deep approach to learning is associated with positive learning outcomes (Entwistle et al., 2003). Students who adopt the deep approach tended to show their strong interest and active involvement in their studies (McCune & Entwistle, 2000). The deep approach was also found to be associated with good academic grades (Heikkilä & Lonka, 2006; Snelgrove & Slater, 2003) and faster completion of their studies (Ruohoniemi et al., 2010).

In contrast, any association between the surface approach and learning outcomes is rather inconsistent. Studies have reported that the surface approach has both a positive (Lizzio et al., 2002) and a negative association (Booth et al., 1999; Byrne et al., 2004; Diseth, 2007) with academic achievement. Another study demonstrated a non-significant association between the surface approach and learning outcomes (Diseth et al., 2006; Peng & Bettens, 2002). It has also been reported that students with a strong orientation to the surface approach have a higher risk of attrition from university (Biggs, 1988) and that students who rely on the surface approach tend to have test anxiety (Spada et al., 2006).

Students' development of study and effort management and regulation is also of interest to universities (Asikainen et al., 2014). Historically, the strategic (Entwistle and Ramsden 1983) or achieving approach (Biggs 1987) was conceptualised to refer to students' awareness of an assessed task. This domain is related to students' learning practices and attitude to achieving the highest grades for assessments. However, in the recent development of the inventory of approaches to learning and studying, the strategic orientations of this domain have become less evident, and the initial conception has now been re-moulded to comprise two elements, organised study and effort management (Entwistle et al., 2003). The strategic approach, including effort management and organised study, was positively related to examination grades (Diseth, 2007; Diseth et al., 2006). Empirical research pointed out that organised study was closely related

to the deep approach (Entwistle et al., 2003; Richardson, 2000; Sun & Richardson, 2012), but that the two are conceptually different. In addition, several recent studies have revealed impacts of organised study on students' learning outcomes that differ from the deep approach. First-year university students who studied in more organised ways tended to achieve a higher GPA and European Credit Transfer and Accumulation System (ECTS), but their deep approach was not related to either (Rytkönen et al., 2012). The achieving approach, including the element of organised study, was solely related to the GPA for Greek university students (Karagiannopoulou & Milienos, 2014). Moreover, students who organised their studies well appeared to be good at coping with impeding factors in their challenging learning experiences, such as lack of proper guidance, course materials and their own interest in learning, but these characteristics were not found with the deep approach (Hailikari & Parpala, 2014).

In general, the overall framework of approaches to learning and studying has been successfully validated in higher education contexts, in particular, in terms of the deep and surface approaches (Duarte, 2007; Parpala et al., 2013; Ullah et al., 2011). On the other hand, the cognitive dimension of students' academic engagement has not yet been fully elaborated or validated in higher education settings, although the major dimensions of academic engagement have been widely accepted in the literature (Fredricks et al., 2004; Kahu, 2013). Therefore, the conception of the approaches to learning and studying provides a good basis for the construct that represents students' cognitive engagement in higher education.

As universities have become increasingly international, some researchers have become interested in how different groups of students engage in their studies and how different educational settings and backgrounds affect this engagement. The researchers have often adopted a concept of the approaches to learning and studying and compared the mean scores of the target student groups.

2.3.1 Cognitive engagement patterns between groups of students with varying backgrounds

Students in different teaching-learning environments may engage in academic activities in different ways. Several studies have attempted to explore how different student groups cognitively engage in their studies by analysing students' approaches to learning and studying. There has been an anecdotal belief that that East-Asian or Chinese students were too reliant on rote learning and the surface approach to learning (e.g., Bowden et al., 2013; Chow, 1995; Kember, 2009; Martinsons & Martinsons, 1996), and that they did not

emphasise deep understanding, including critical thinking, questioning and independent learning (Gieve & Clark, 2005). However, several researchers have offered empirical evidence that challenges this belief. Furthermore, there has been contradictory evidence on whether students' prior educational background is a central determinant of student engagement. For example, Kember (2000, 2009) argued that Hong Kong students may emphasise the surface approach to learning because of the strong reproductive orientation in their assessment context, but he highlighted that the students favoured both understanding the learning contents and committing them to memory in order to achieve better marks on their examinations. Furthermore, Sadler-Smith and Tsang (1998) demonstrated that Hong Kong students tended to produce lower scores on the deep and strategic approaches than students in the UK, but suggested that the Hong Kong university students used the surface approach as much as the UK students. A comparative study between Hong Kong and Australian students found that the Hong Kong students employed both surface and deep approaches more significantly (Leung et al., 2008). Researchers which used a different inventory with items relevant to students' cognitive academic engagement have also shown that stereotypical learning patterns for "European" or "Asian" students did not emerge (Ajisuksmo & Vermunt, 1999; Marambe et al., 2012; Vermunt et al., 2014).

Further studies need to consider whether tendencies in students' cognitive engagement including approaches to learning in different contexts might be explained by characteristics embedded in the teaching-learning environment, not solely by individual students' characteristics. The literature has suggested that pedagogical orientations vary in different countries (Zhu et al., 2008), and that learning is strongly influenced by practices in the teaching-learning environment (Kember & Gow, 1991). Martínez-Fernández and Vermunt (2013) argue that students' conceptions of learning and learning orientation towards goals and objectives are somewhat stable among students in different learning contexts, but study regulation and cognitive processing strategies can be explained more by contextual influence.

Several studies have contrasted local and international student groups in the same educational settings. Niles (1995) showed that Asian-dominant international students used the surface and deep approaches more than domestic Australians. Ramburuth and McCormick (2001) reported no significant differences between Asian international and local Australian students in the orientations of their approaches to learning. However, Sun and Richardson's (2012) report indicated that Chinese international students in the UK appeared to adopt the deep and strategic approaches less than the local students. Accordingly, the research findings in the literature are not consistent.

Sun and Richardson (2012) pointed out that no study had exclusively examined mainland Chinese students. They argued that a group of Hong Kong students had been treated as proxy for Chinese students. Hong Kong has a long history of British colonialism stretching over 160 years, and it is therefore reasonable to consider that the teaching-learning environment has mainly been imposed by practices and beliefs prominent in the UK (Sun & Richardson, 2012). There is, in fact, a study that focused on mainland Chinese students (Zhu et al., 2008), suggesting that mainland Chinese students were less disposed to exhibit the surface approach to learning than Flemish students, whereas there were no significant differences in the deep and strategic approaches. However, the study (Zhu et al., 2008) examined groups located in two separate settings. Thus, again, there is a possibility that the results reflected the practices of different teaching-learning environments rather than the students' characteristics, although these are, of course, rigorously inseparable.

Another gap in the literature is that few researchers have hitherto examined different international student groups in the same educational context. Prior studies have mostly compared international students and local students, and it is generally assumed that most local students engaged in their studies in a fairly familiar language, their first language. Furthermore, the local students are more likely to share, or at least to have easier access to, general information and understanding about their teaching-learning environment. Students engaging in their studies in a foreign language and in a new environment may encounter demanding challenges such as language proficiency, coping with new pedagogical formats, understanding the fundamental social and cultural system and obtaining help from peers and faculty (Andrade, 2006; Malau-Aduli, 2011; Sakurai, 2009). In this demanding teaching-learning environment, a perceived high workload may be related to students' surface approach to learning (Baeten et al., 2010). Therefore, students studying in these new contexts may rely on the surface approach than those in a familiar teaching-learning environment.

Only a few studies have given attention to different international student groups in the same country. For example, Smith (2001) found no significant differences in the approaches to studying among Malaysian-, Singaporean- and Hong Kong-Chinese international students in an Australian university context. Zhao, Kuh and Carini (2005) found that Asian international students were generally less engaged in various academic activities than either black or white international students. Their results also showed that the black students scored higher on several engagement scales than the white students. However, this study mostly focused on behavioural engagement, although there were a few survey measures on the cognitive engagement. The available findings imply that exploring different international students' cognitive engagement in the same educational context would offer new insights into pedagogical practices in the

teaching-learning environment of today's highly diversifying universities (see Studies I and II).

2.4 Emotional engagement in academic activities

Students' emotional engagement entailing their academic satisfaction, distress and feelings of membership in an institution during their studies has been shown to have substantial association with academic outcomes (e.g., Boekaerts, 1993; Harackiewicz et al., 2014; Pekrun et al., 2009; Pritchard & Wilson, 2003; Townley et al., 2013). For example, the level of students' emotional engagement in their studies, such as study satisfaction, appears to be associated with their GPA, while academic distress and study dissatisfaction may lead to serious consequences, including even abandoning the degree, regardless of the degree level (Cotton et al., 2002; El Ansari & Oskrochi, 2006; Kuh et al., 2008; Lovitts, 2001; Pritchard & Wilson, 2003; Pyhältö et al., 2009; Pyhältö, Toom, et al., 2012; Schaufeli, Martínez, et al., 2002; Stubb et al., 2011) Pekrun et al. (2009) furthermore showed comprehensively that university students' academic emotions, for example, enjoyment, hope and anxiety, to name a few, explain examination performance. In addition, students tended to achieve better GPAs if they had a greater sense of belonging to discipline-related communities in the fields of science, technology, engineering and mathematics (Townley et al., 2013). The considerable impact on doctoral students of dropping out has been stressed by researchers in the field of doctoral education research (Lovitts, 2001).

Nonetheless, the research findings thus far are still ambiguous. Schaufeli et al. (2002) showed that ratios of students' successful course completions were associated positively with their emotional engagement and negatively with burnout among different European countries, but they noted that most links were very weak. Other studies reported that students' satisfaction with their studies was not associated with their self-assessed academic performances (El Ansari & Stock, 2010) or course grades (Walker & Palmer, 2011). Moreover, it has been reported that good correlations were hardly seen between students' GPAs and psychosocial scales such as academic and general stress (Richardson et al., 2012). These findings imply that the emotional component of the academic engagement does not automatically align with students' academic outcomes. Struthers et al. (2000) argue that students may have a demanding time during their university studies, but many indeed manage to cope with the challenges. Therefore, students' emotional disengagement from their studies may not lead directly to lower academic achievement. Some students may strategically enhance their cognitive or behavioural engagement so that they can maximise their academic attainment.

A notable finding related to students' emotional engagement during their studies is that their satisfaction levels were highly correlated with their positive word-of-mouth statements and programme loyalty (Serenko, 2011), which can also be considered outcomes of university learning experiences. This is valuable knowledge for universities desiring to enhance their international reputations, although it is still unclear whether emotional engagement in studies has direct and marked associations with student academic performances and achievements.

2.4.1 Emotional engagement patterns between groups of students with varying backgrounds

International students' emotional engagement during their study experiences is of particular importance, given that entering a new environment is challenging (Ramsay et al., 2007). Students' emotional engagement such as satisfaction with their programmes may influence perceptions and word-of-mouth communications about their host university (Serenko, 2011). Hence, there is an additional reason to examine students' emotional engagement so that universities and teachers can improve their pedagogical practices and support services.

International students may encounter a series of emotional burdens more than domestic students, although domestic students may also have to cope with emotional issues (Mullins et al., 1995). Prior studies have shown that international students' satisfaction with academic programmes (Grayson, 2008) and their perceptions of adjustment to their university (Ramsay et al., 2007) were lower than that of their domestic counterparts. Fewer international students than local students reported having acquired useful knowledge over the study year (Grayson, 2008). However, a large-scale European survey showed that the general satisfaction scores of international students were higher than those of domestic students, although the survey's scope included students' non-academic perceptions (Ellis & van Aart, 2013). Furthermore, differences between students of different backgrounds have been detected. Asian students generally experienced less positive emotional engagement in their studies. Zhao et al. (2005) focused on three international student groups in the United States and found that the Asian students were clearly less satisfied with their studies than either black or white students. In addition, East Asian students in Canada evaluated their levels of well-being and acculturation lower than did South African and European students (Chirkov et al., 2008). The large European survey supported this trend, showing generally higher satisfaction levels among European international students in European universities (Ellis & van Aart, 2013). Students from China ranked sixteenth among 28 countries in satisfaction

levels ("Other" ranked 22nd). No other Asian countries appeared on the ladder of ranking.

Cotterall (2013) emphasised the significance for researchers to become aware of doctoral students' emotional engagement in their academic experiences. However, there is not yet a solid research base for the academic satisfaction of doctoral students. Pyhältö et al. (2009) reported that doctoral students' positive engagement in their studies was associated with the intention to interrupt their studies. Stubb et al. (2012) found that students who highlighted learning process-related goals during their studies reported less stress, exhaustion, anxiety and lower risks of dropping out, and maintained their interest in their doctoral studies more than the outcome-oriented students. More studies are necessary to obtain useful insights that can support students, including international doctoral students, engaging in their studies in a positive emotional state. Even less have the similar or dissimilar tendencies of international and domestic doctoral students' emotional engagement in their doctoral studies been addressed. A comparative study in Australia suggested that international doctoral students were more emotionally engaged in their studies than domestic students (Harman, 2003). More precisely, Harman (2003) showed that international students were more satisfied with their studies and considered dropping out of their programmes less often than domestic students. What is interesting in Harman's study is that the international students showed higher positive reactions with general satisfaction, but there were no significant differences in more specific academic dimensions such as workspace, library facilities and supervisory experiences.

2.5 Factors affecting students' academic engagement

Multiple factors in the teaching-learning environment interact with students' academic engagement. The teaching-learning environment can be understood as social, psychological and pedagogical settings in which students' academic engagement in learning and their development of attitude take place (Fraser, 1998, p. 3). A good teaching-learning environment can enhance students' engagement in their studies (McCormick et al., 2013), while a poor teaching-learning environment can bring about undesired challenges and demands for academic engagement (Demerouti et al., 2001). Individuals encounter various demands or supports linked with physical, psychological, social and organisational factors in the course of their academic studies (Bakker & Demerouti, 2007; Demerouti et al., 2001). The demands require physical, cognitive and emotional efforts to accomplish academic work. On the other hand, the resources of the working environment and personal domain may serve to reduce the demands and support students' work achievements and personal

development (Bakker & Demerouti, 2007; Demerouti et al., 2001). Accordingly, excessive demands may cause students to disengage from their studies and result in less favourable personal development (Rudman & Gustavsson, 2012), while sufficient resources may enhance the chance of student engagement (Dahlin et al., 2010). However, individuals engaged in academic study interact with many factors in their environment, and it is the dynamics of the multiple factors that serves as a core determinant of academic engagement rather than individual factors (Vekkaila, 2014). Therefore, one meaningful research direction in students' academic engagement is to take a wide view and capture the interrelationship between academic engagement and the various factors that contribute to it.

2.5.1 Factors contributing to Bachelor's and Master's students' academic engagement

Prior studies have identified several factors affecting Bachelor's and Master's students' academic engagement. Students' perceptions that their teachers actively used collaborative, cognitively demanding teaching techniques, interacted with the students and offered challenging and enriching academic tasks were shown to be major factors affecting the students' academic engagement (Umbach & Wawrzynski, 2005). Good teaching, clear objectives, appropriate assessment methods and autonomous learning opportunities were also mentioned as enhancing students' cognitive engagement in a deep approach to learning (Lizzio et al., 2002). Students' perceptions of alignment in course and assessment objectives have also been found to be related positively to the deep approach and negatively to the surface approach to learning (Entwistle et al., 2003; Parpala et al., 2013). It has furthermore been demonstrated that forming a small student study group offered students a rich learning environment and facilitated their engagement in learning (Zhao & Kuh, 2004). Parpala et al. (2013) demonstrated that students' perceptions of teaching for understanding and their interest and relevance integrated in learning contents were likewise related to the approaches to learning, both in Finland and in the UK. Similarly, Rytkönen et al. (2012) showed that perceptions of alignment in learning contents among bioscience Bachelor's students were related positively to the deep approach and organised studying, and negatively to the surface approach. The students' perceptions of peer supporting in learning were also associated with organised studying. In addition, an inappropriate workload has often been reported as encouraging students to employ the surface approach (Entwistle et al., 2003; Lizzio et al., 2002).

Positive experiences in class are associated with emotional engagement in studies, irrespective of whether the students are domestic or international

(Douglas et al., 2008; Grayson, 2008). More concretely, course organisation, academic level, assessment methods and resources available were suggested as playing key roles in students' satisfaction with their studies (El Ansari & Oskrochi, 2006). In contrast, students who experienced academic difficulties and a lack of regulation in their studies felt distressed and exhausted (Heikkilä et al., 2011). However, Entwistle et al. (2003) argued that the effect of students' perception of the teaching-learning environment on their self-assessed academic attainment was very weak.

There are several other factors which potentially have an impact on international students' emotional engagement in their studies. The degree of their cultural adaptation to their new study environment may considerably influence satisfaction with academic experiences (Campbell & Li, 2008; Mayya et al., 2002; Wadsworth et al., 2008). In contrast, distress often results from demands for a high workload and difficulty in understanding the lectures (Sam, 2001). Generally, the insufficient opportunities of international students to interact with domestic students have often been pointed out, and those who had positive contacts with their domestic peers were significantly more satisfied with their study experiences (Perrucci & Hu, 1995; Trice, 2004).

Previous research has demonstrated significant factors that can contribute to students' cognitive and emotional engagement in their academic experience. However, attempts to investigate international students have been limited to specific measures of the students' cognitive or emotional engagement. No study has examined whether there are differences among international student groups in how the dimensions of the teaching-learning environment contribute to cognitive and emotional engagement. The present study will attempt to provide insights into whether any particular international student groups are influenced differently by dimensions of the teaching-learning environment (see Study I).

2.5.2 Factors contributing to doctoral students' academic engagement

Doctoral students in Finland are intensively involved in research at the same time that they are engaged in coursework, seminars and supervisory meetings with senior researchers. Their positions thus have a dual nature, that of researcher and student concurrently (Stubb et al., 2011). Prior studies on doctoral students' experiences have presented several factors affecting their academic engagement. A satisfactory supervisory relationship with their major professor or other faculty member is paramount during doctoral studies (Pitcher, 2010; Protivnak & Foss, 2009; Styles & Radloff, 2001; Wisker, 2007; Zhao et al., 2007). In turn, poor supervisory relationships have often been identified as a major source of reduced levels of academic engagement (Golde, 1998; Pyhältö, Toom, et al., 2012). Supportive supervision, such as sharing

expertise, having regular meetings and receiving comprehensive research advice, has been indicated as facilitating students' emotional engagement, for instance, greater satisfaction with their study experiences (Heath, 2002; Ives & Rowley, 2005; Pyhältö, Vekkaila, et al., 2012; Zhao et al., 2007). In particular, Evans and Stevenson (2011) reported that international doctoral students were significantly more likely to rely on supervisors than were their domestic colleagues.

Doctoral education does not aim merely at developing students' subject knowledge, but also nurtures them to become professional researchers by helping them acquire domain-specific traditions, requirements, practices and languages (Vekkaila, 2014, p. 66). It is important for the students to become familiar with the responsibilities expected of them in the research community (Austin, 2009) and to develop a sense of professional identity and membership (Fergie et al., 2011; McAlpine et al., 2009). It has been suggested that students' sense of belonging and good fit in their scholarly communities increases their general academic engagement (Vekkaila et al., 2013) and contributes to their positive mental health (Stubb et al., 2011). However, student involvement in the scholarly community can be hindered by inadequate facilities, poor office space, and physical and psychological distance from various academic communities (Deem & Brehony, 2000). The deficiency of research facilities, especially in the hard sciences, may cause students' disengagement not only from scholarly practices, but also from developing their professional skills (Vekkaila et al., 2012). International doctoral students furthermore tended to perceive themselves as not being well-integrated into their scholarly communities (Evans & Stevenson, 2011).

Several other factors that may undercut positive engagement in doctoral studies have been presented. An excessive workload may prevent doctoral students from efficiently balancing their studies with other, non-academic responsibilities (Kurtz-Costes et al., 2006; Lee, 2009; Protivnak & Foss, 2009; Stubb et al., 2011). Financial concerns about their studies and family expenses create another serious emotional burden for doctoral students (Kurtz-Costes et al., 2006; Lee, 2009). A competitive atmosphere in academia is also among the major stressors (Kurtz-Costes et al., 2006; Protivnak & Foss, 2009) that may reduce students' academic engagement. Although teaching experience is a vital component of a person's development as a university researcher (Vekkaila, 2014), some students may also find it demanding (Brauer et al., 2003; Zhao et al., 2007). A flexible basic consulting system and study environment have been suggested as essential factors for busy doctoral students (Lee, 2009).

Personal factors have also been suggested as affecting how students engage in their studies. Prior research implied that students' awareness of career prospects after the PhD, together with self-discipline, family support (Lee, 2009), self-regulatory skills, motivation and self-efficacy beliefs (Pyhältö, Toom, et al., 2012)

encourage positive doctoral experiences. One under-examined perspective would be the association of a student's personal reasons for undertaking doctoral study with academic engagement. Prior studies have reported that major reasons to begin doctoral study were, for example, to earn the highest degree in a field, to obtain more favourable career status and to develop one's potential further (Kubatkin & Christie, 2006; Zimak et al., 2011). There are a number of studies that have reported on international students' motivations for studying abroad (González et al., 2011; Li & Bray, 2007; Llewellyn-Smith & McCabe, 2008; Zheng, 2014). For instance, key factors for Portuguese doctoral students were their scientific interests, better research opportunities and training, and better employment prospects (Araújo, 2007; Delicado, 2010). The students also emphasised developing international scientific networks (Araújo, 2007). Furukawa, Shirakawa and Okuwada (2013) suggested that the university ranking and employment prospects in host countries significantly attracted doctoral students in the field of engineering. Those studies offer valuable insight into doctoral students' motivations to pursue a PhD degree, but research is lacking to explain whether there are any similarities and dissimilarities in the reasons that domestic and international students pursue a doctoral degree. As yet there is no research on whether different motivations for pursuing the PhD may be associated with a student's academic engagement (see Study IV).

The decision to pursue doctoral study must be an enormous one, especially for international students who have to invest a large amount of time and money. Research attempts that explore not only a wide variety of key factors in international doctoral students' academic engagement, but also the association between these factors and engagement in their studies are insightful (see Study III). In addition, it is important to deepen our understanding of different kinds of student groups, as today many supervisors are responsible for both domestic and international students. Some sub-groups of international students may end up with lower emotional engagement in their study experiences owing to unfamiliar pedagogical, supervisory and research practices (Evans & Stevenson, 2011).

2.6 Summary of theoretical framework

University students engage in their studies in an iterative and dynamic process between themselves and various dimensions of the teaching-learning environment, such as good teaching, assigned tasks in courses and the available materials (Figure 1). The learning environments of doctoral students often extend beyond the university context, and include national and international scholarly communities to which researchers in related fields contribute. Students are also absorbed in studying, along with shouldering responsibilities in their

personal lives and relevant factors in the personal domain. These dimensions and factors may also serve the students as supporting resources to help them engage in their studies. However, other factors, such as high demands, may interrupt their academic engagement, which may impede students' academic achievements and their development as researchers and highly professional experts. In this setting of students' learning, students engage in their studies behaviourally, cognitively and emotionally on the basis of individual factors such as their perceptions of the context, motivation and personal background. Significantly, this comprehensive process continuously affects the students' evolving academic engagement or reduced engagement, which, in turn, serves as the foundation for further academic involvement. Students' academic engagement is an ever-evolving interplay of student and learning environment. This is why it is considered both a process and an outcome in educational activities.

Hence, students are involved in their studies in a highly dynamic and complicated environment in which many factors are mutually and simultaneously interrelated. This doctoral thesis deals with the linkages between several dimensions of the teaching-learning environment. In particular, it attempts to unpack some unique features of international students by illuminating similarities and dissimilarities between different international and domestic student groups in the same teaching-learning environment.

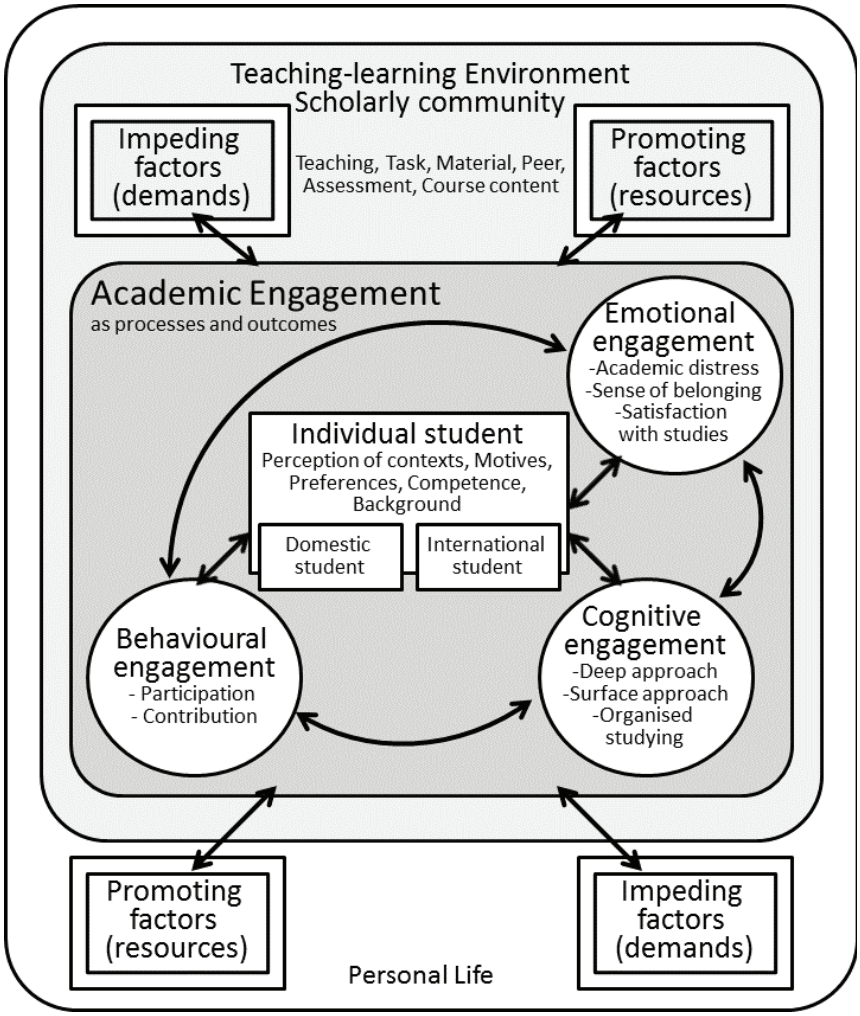

Figure 1. Summary of the theoretical framework of this doctoral thesis

3 THE AIMS OF THE STUDY

This doctoral thesis attempted to obtain a deep understanding of the factors associated with international university students' engagement in their studies. The overall aim was fundamentally two-fold: to explore significant features of international students' academic engagement and to examine whether these features differ between student groups at the same Finnish university. In addition, the thesis dealt with the doctoral level separately from the Bachelor's and Master's levels, owing to the significant research and work orientation involved in obtaining a Finnish doctoral degree. The following research questions were explored:

1) To what extent do the associations of students' academic engagement in studying and their perceptions of the teaching-learning environment differ between two international student groups (Asian and European students) at the Bachelor's and Master's levels at the same university? (Study I)
2) Do Chinese university students engage in learning differently from the other international students at the same university at the levels of cognitive engagement such as the surface approach to learning, the deep approach to learning and organised studying? (Study II)
3) What factors are associated with indicators of international doctoral students' engagement in their studies, such as contemplating dropping out and satisfaction with their studies? (Study III)
4) Are doctoral students' reasons for embarking on a doctoral degree related to their emotional engagement in their studies, and does this relation differ between domestic and international students? If so, how? (Study IV)

4 CONTEXT OF THE STUDY

4.1 Bachelor's and Master's level education

Since the Bologna Declaration was implemented, undergraduate university degrees in Finland have been structurally divided into Master's and Bachelor's. However, at least in Finland, the Bachelor's degree is still seen as an intermediate phase towards a Master's, and in practical terms the two degrees share a coherent learning structure (Aronen, 2005; Heikkilä, 2011). Students are required to complete 180 ECTS points for a Bachelor's degree, and 120 ECTS points for a Master's. Finnish universities encourage students to complete the Bachelor's degree in three years and a Master's degree in two years. When the present doctoral study started in 2011, approximately 1,300 international students from various countries were pursuing their Bachelor's or Master's degrees at the University of Helsinki. This figure represented 4.3% of the entire Master's and Bachelor's degree students at the university. Approximately three-fourths of the students were studying in Master's level programmes. International students who wish to study in a Master's or Bachelor's degree programme at the University of Helsinki must follow university admission procedures with certain faculty-specific requirements. They must meet the language skill requirements, usually in English. In 2013 the university accepted about 20% of the Master's degree applicants, but acceptance ratios varied widely, from 0% to 100%, depending on the programme.

4.2 Doctoral education

Generally, students who wish to pursue doctoral education must apply for a specific programme. Some immediately launch into a programme after earning their Master's degree, while others are involved in a project leading to their doctoral degree even as they undertake Master's studies (Vekkaila, 2014). There are roughly three different doctoral statuses based on the funding situation (University of Helsinki, 2014). Doctoral students who conduct their project under a university contract receive a salary and social security benefits, necessary work facilities and training. There are other grant-funded students who conduct research and are supported by individual research units or external agencies. These students usually have access to facilities available to members of research units and the university in general, but do not have contracts directly with the university. There are also self-funded doctoral students who essentially finance their own daily expenses and research-related costs. They still have access to the basic university facilities and the academic learning opportunities

available to all students, including courses, facilities and online resources. International students who begin studying in Finland for the first time at the doctoral level find their positions through international advertisements provided by research groups. The students can seek grants on their own and simultaneously apply to a university for study. Admission requirements and procedures differ among the faculties. Some international doctoral students also work for a short time while based in a university or individual research unit according to a bilateral agreement.

Doctoral students have at least one supervisor for their doctoral project (Pyhältö, Nummenmaa, et al., 2012). They prepare a doctoral thesis, take coursework and seminars, and ultimately defend their thesis in a public examination. The doctoral thesis can be either a monograph or article-based research, with about 60% of the students choosing the former at the University of Helsinki (Saari & Moilanen, 2012). Students who write a monograph doctoral thesis often engage in seminars, and supervision consists of one-to-one encounters rather than group meetings. The article-based doctoral thesis, on the other hand, is comprised of an extensive summary of the project report including three to five internationally-refereed articles co-authored with other doctoral students, post-docs and/or supervisors in their group. In research published in 2012, the majority of students (54%) carried out their project by themselves, while approximately 22% worked within a research group. The remaining 24% reported working both by themselves and in a group (Saari & Moilanen, 2012).

Course work and seminars equivalent to 40 to 60 ECTS are individually designed under the supervisors' guidance. These can include, for instance, research method courses, international conference participation and teaching. Whereas the University of Helsinki encourages students to complete the doctoral degree in four years, the average duration of full-time doctoral students working towards their defence ranges from six to seven years (Stubb et al., 2011). The signature pedagogy of both thesis formats has been the supervisor-student apprenticeship model. However, the tradition has gradually shifted towards a more organised and structured design (Kottmann, 2011; Stubb, 2012).

When the four studies that make up this thesis were undertaken, about 4,500 doctoral students were enrolled in the University of Helsinki. Among them, 612 were international students, and they came from 79 countries of origin, for example, China (11.3 %), Russia (9.5 %), Germany (7.5 %), Estonia (6.4 %), Italy (4.2 %), Iran (3.4 %) and Poland (3.1%).

5 METHODOLOGY

5.1 Participants

5.1.1 Bachelor's and Master's level students (Studies I & II)

A total of 1,934 international Bachelor's and Master's level students in 12 different faculties received invitational emails to participate in an online survey twice in 2011. Altogether, 307 students from various national origins volunteered for Studies I and II (204 female, 99 male, 4 genders unknown) (Table 2). Students from Europe were the largest in number (161; 52.4%), followed by students from Asia (93; 30.3%), Latin America and the Caribbean (21; 6.8%), North America (6.2; 6.2%), Africa (8; 2.6%) and Oceania (2; 0.7%) (and 3 or 1.0% were of undisclosed nationality). In Study II, students who answered "Chinese" (22 students), "China" (19), "P. R. China" (1) and "Taiwan" (1) as their nationality were classified into the group of "Chinese students". There were no students who answered "Hong Kong".

One hundred-ninety students (61.9%) were under 25 years of age, 70 (22.8%) were between 25-29, 30 (9.8%) between 30-34, and 4.2% were over 34 (1.3% unknown). The largest number of these students (21.8%) was enrolled in the Faculty of Arts, while the second largest number (18.9%) was enrolled in the Faculty of Social Sciences. Responses from 91 Bachelor's students (29.6%) included 73 (23.8%) exchange students and 18 (5.9%) students pursuing degrees. About half of the Bachelor's- and Master's-level students were enrolled in a Master's degree programme (55.7%), and 45 (14.7%) were in a Master's exchange programme. English was the major language of instruction (88.3%). Almost two-thirds of the students (190; 61.9%) had been in Finland for less than one year, and 37 (12.1%) for one to two years, 28 (9.1%) for between two to three years, 13 (4.2%) for between three to four years, and 29 (9.4%) for more than four years.

Table 2. Demographics of the Master's and Bachelor's students in Studies I and II

		Total (%)	Asia		Non-China	
				China		Europe
Gender	Female	204 (66.4)	53 (57)	31 (72.1)	173 (65.5)	121 (75.2)
	Male	99 (32.2)	39 (41.9)	11 (25.6)	88 (33.3)	38 (23.6)
	Unknown	4 (1.3)	1 (1.1)	1 (2.3)	3 (1.1)	2 (1.2)
Age	Under 25	190 (61.9)	55 (59.1)	31 (72.1)	159 (60.2)	118 (73.3)
	25-29	70 (22.8)	24 (25.8)	8 (18.6)	62 (23.5)	27 (16.8)
	30-34	30 (9.8)	9 (9.7)	3 (7)	27 (10.2)	9 (5.6)
	35-39	9 (2.9)	2 (2.2)	0 (0)	9 (3.4)	3 (1.9)
	40-44	2 (0.7)	0 (0)	0 (0)	2 (0.8)	1 (0.6)
	45-49	1 (0.3)	0 (0)	0 (0)	1 (0.4)	1 (0.6)
	50-54	1 (0.3)	0 (0)	0 (0)	1 (0.4)	1 (0.6)
	Unknown	4 (1.3)	3 (3.2)	1 (2.3)	3 (1.1)	1 (0.6)
Faculty	Agriculture and Forestry	51 (16.6)	32 (34.4)	17 (39.5)	34 (12.9)	11 (6.8)
	Arts	67 (21.8)	13 (14)	4 (9.3)	63 (23.9)	46 (28.6)
	Behavioural Sciences	10 (3.3)	1 (1.1)	0 (0)	10 (3.8)	7 (4.3)
	Biological and Environmental Sciences	26 (8.5)	9 (9.7)	4 (9.3)	22 (8.3)	12 (7.5)
	Law	23 (7.5)	3 (3.2)	2 (4.7)	21 (8)	17 (10.6)
	Medicine	5 (1.6)	2 (2.2)	1 (2.3)	4 (1.5)	3 (1.9)
	Pharmacy	2 (0.7)	0 (0)	0 (0)	2 (0.8)	2 (1.2)
	Science	49 (16)	22 (23.7)	8 (18.6)	41 (15.5)	17 (10.6)
	Social Sciences	58 (18.9)	9 (9.7)	6 (14)	52 (19.7)	34 (21.1)
	Swedish School of Social Science	8 (2.6)	1 (1.1)	1 (2.3)	7 (2.7)	7 (4.3)
	Theology	6 (2)	1 (1.1)	0 (0)	6 (2.3)	3 (1.9)
	Veterinary Medicine	2 (0.7)	0 (0)	0 (0)	2 (0.8)	2 (1.2)
Student status	Exchange Bachelor's	73 (23.8)	9 (9.7)	4 (9.3)	69 (26.1)	57 (35.4)
	Degree Bachelor's	18 (5.9)	5 (5.4)	0 (0)	18 (6.8)	11 (6.8)
	Exchange Master's	45 (14.7)	4 (4.3)	3 (7)	42 (15.9)	38 (23.6)
	Degree Master's	171 (55.7)	75 (80.6)	36 (83.7)	135 (51.1)	55 (34.2)
Language of instruction	English	271 (88.3)	84 (90.3)	40 (93)	231 (87.5)	138 (85.7)
	Finnish	29 (9.4)	7 (7.5)	2 (4.7)	27 (10.2)	18 (11.2)
	Swedish	2 (0.7)	0 (0)	0 (0)	2 (0.8)	2 (1.2)
	Other	5 (1.6)	2 (2.2)	1 (2.3)	4 (1.5)	3 (1.9)
Length of stay	Less than 1 year	190 (61.9)	47 (50.5)	19 (44.2)	171 (64.8)	117 (72.7)
	1-2 years	37 (12.1)	13 (14)	6 (14)	31 (11.7)	10 (6.2)
	2-3 years	28 (9.1)	16 (17.2)	9 (20.9)	19 (7.2)	10 (6.2)
	3-4 years	13 (4.2)	5 (5.4)	2 (4.7)	11 (4.2)	6 (3.7)
	More than 4 years	29 (9.4)	7 (7.5)	4 (9.3)	25 (9.5)	15 (9.3)
	Unknown	10 (3.3)	5 (5.4)	3 (7)	7 (2.7)	3 (1.9)
Total		307	93	43	264	161

The female participants (66.4%) were slightly overrepresented: 57.5% of the entire student body registered was female, according to student information available from the Student Register Office records for 2011-12 (Table 3). The distributions of other student characteristics such as students' original countries and faculty generally represented the whole student body well.

Table 3. Information on Master's and Bachelor's students at the University of Helsinki

		Total (%)
Gender	Female	648 (57.5)
	Male	478 (42.5)
Faculty	Agriculture and Forestry	171 (15.2)
	Arts	362 (32.1)
	Behavioural Sciences	21 (1.9)
	Biological and Environmental Sciences	68 (6.0)
	Law	27 (2.4)
	Medicine	10 (0.9)
	Pharmacy	12 (1.1)
	Science	242 (21.5)
	Social Sciences	188 (16.7)
	Swedish School of Social Science	8 (0.7)
	Theology	17 (1.5)
	Veterinary Medicine	0 (0.0)
	Africa	(4.3)
	Asia	(30.1)
	Europe	(54.0)
	Latin America and the Caribbean	(4.4)
	North America	(6.8)
	Oceania	(0.4)

5.1.2 Doctoral students (Studies III & IV)

This doctoral thesis used a dataset drawn from a project for doctoral training evaluation conducted in March 2011 at the University of Helsinki (Saari & Moilanen, 2012). Invitations for the survey were sent via email to all doctoral students, numbering 4,274 individuals. Overall 1,064 domestic and 120 international students completed the survey (Table 4). Females accounted for 65.3% (770) of the total responses, while males accounted for 32.5% (383) (mode: 30-34 years in age). More students entered the survey in the Faculties of Arts (20.3%) and Science (13.3%) than from other faculties. The majority of the participants (64.9%) worked on a full-time basis. More than half of the domestic students (56%) reported working alone, while the international students were distributed fairly evenly in their work type: those working individually (38.3%), those working in a group (34.2%) and those working in a combined fashion (27.5%). Moreover, more than half (59.5%) planned to prepare article-based doctoral theses. Taking into account the years of students' admission to the PhD programme and their estimated completion, 22.9% of all the participants were in the first of three phases of their doctoral studies; 30.5% were in the second phase and 46.7% in the last phase. This survey did not collect information on the students' countries of origin.

Table 4. Demographics of the doctoral students in Studies III and IV

		Total (%)	Domestic	International
Gender	Female	770 (65.3)	708 (66.5)	62 (51.7)
	Male	383 (32.5)	325 (30.5)	58 (48.3)
	Unknown	31 (2.6)	31 (2.9)	0 (0)
Age	25-29	316 (26.7)	256 (24.1)	60 (50.0)
	30-34	430 (36.3)	396 (37.2)	34 (28.3)
	35-39	160 (13.5)	153 (14.4)	7 (5.8)
	40-44	89 (7.5)	82 (7.7)	7 (5.8)
	45-49	72 (6.1)	69 (6.5)	3 (2.5)
	50 or over	99 (8.4)	94 (8.8)	5 (4.2)
Faculty	Agriculture and Forestry	118 (10)	93 (8.7)	25 (20.8)
	Arts	239 (20.3)	229 (21.5)	10 (8.3)
	Behavioural Sciences	98 (8.3)	93 (8.7)	5 (4.2)
	Biological and Environmental Sciences	111 (9.4)	95 (8.9)	16 (13.3)
	Law	42 (3.6)	34 (3.2)	8 (6.7)
	Medicine	141 (11.9)	125 (11.7)	16 (13.3)
	Pharmacy	30 (2.5)	22 (2.1)	8 (6.7)
	Science	157 (13.3)	142 (13.3)	15 (12.5)
	Social Sciences	137 (11.6)	124 (11.7)	13 (10.8)
	Theology	59 (5)	59 (5.5)	0 (0)
	Veterinary Medicine	47 (4)	44 (4.1)	3 (2.5)
	Unknown	1 (0.1)	0 (0)	1 (0.8)
Status	Full-time	769 (64.9)	684 (64.3)	85 (70.8)
	Part-time	415 (35.1)	380 (35.7)	35 (29.2)
Research group status	Individual	636 (54.2)	590 (56.0)	46 (38.3)
	Group	256 (21.8)	215 (20.4)	41 (34.2)
	Combined	281 (24.0)	248 (23.6)	33 (27.5)
Language of doctoral thesis	Finnish	197 (16.9)	195 (18.6)	2 (1.7)
	Swedish	21 (1.8)	21 (2.0)	0 (0)
	English	924 (79.2)	807 (77.1)	117 (97.5)
	Other	25 (2.1)	24 (2.3)	1 (0.8)
Thesis format	Monograph	418 (35.7)	384 (36.5)	34 (28.6)
	Article based	697 (59.5)	631 (60.0)	66 (55.5)
	Undecided	56 (4.8)	37 (3.5)	19 (16.0)
Study phase	1/3	253 (22.9)	221 (22.1)	32 (30.8)
	2/3	337 (30.5)	304 (30.3)	33 (31.7)
	3/3	516 (46.7)	477 (47.6)	39 (37.5)

The sample students represented the entire doctoral cohort well in terms of gender distribution (Table 5). About one-third of all the domestic students (62.8%) and about half of all the international students (48.2%) were females. Furthermore, the representatives of domestic students distributed among the faculties suited the equivalent ratio of the university as a whole, but the international student sample ratios, namely the Faculty of Agriculture and Forestry, Faculty of Arts, and Pharmacy (20.8%; 8.3% and 6.7% respectively), differed slightly from those in the University Register Record (10.3%; 19.9% and 2.0% respectively).

Table 5. Information on doctoral students at the University of Helsinki

		Domestic	International
Gender	Female	2452 (62.8)	295 (48.2)
	Male	1455 (37.2)	317 (51.8)
Faculty	Agriculture and Forestry	305 (7.8)	63 (10.3)
	Arts	778 (19.9)	122 (19.9)
	Behavioural Sciences	403 (10.3)	25 (4.1)
	BioBiological and Environmental Sciences	342 (8.8)	88 (14.4)
	Law	156 (4.0)	26 (4.2)
	Medicine	389 (10.0)	93 (15.2)
	Pharmacy	88 (2.3)	12 (2.0)
	Science	561 (14.4)	72 (11.8)
	Social Sciences	580 (14.8)	92 (15.0)
	Theology	238 (6.1)	12 (2.0)
	Veterinary Medicine	67 (1.7)	63 (10.3)

5.2 Materials

Two separate instruments were used to assess Bachelor's- and Master's-level students (Studies I & II) and doctoral students (Studies III & IV) in order to determine the extent to which they engaged in their studies and the major factors associated with their academic engagement. For Studies I and II, the survey was formulated based on the Experience of Teaching and Learning Questionnaire (ETLQ) (Entwistle et al., 2003). For Studies III and IV, this thesis used an instrument developed at the University of Helsinki (Saari & Moilanen, 2012).

5.2.1 Studies I and II: Survey of Bachelor's- and Master's-level students

ETLQ is a self-reporting questionnaire used to measure students' perceptions of the dimensions of their teaching-learning environment, their approaches to learning and their study success. This thesis used several subsections from ETLQ. A major reason for choosing ETLQ was that it was developed on the basis of intensive literature reviews of theories about good teaching and student learning (Parpala et al., 2013). Furthermore, a well-known inventory, the Course Experience Questionnaire (Ramsden, 1991), puts significant emphasis on teachers and teaching, but ETLQ is more in line with the understanding of the teaching-learning environment in this thesis, whose purpose is to include peer support and general alignments of contents and courses within students' programmes (Karagiannopoulou & Milienos, 2014).

Following new faculty development initiatives, major pedagogical policy decisions formulated at universities were assumed to be more collectively arrived at than those made by individual course teachers (Parpala & Lindblom-Ylänne, 2012). Therefore, the original ETLQ focused on students' perceptions of a single course, but this doctoral thesis altered the ETLQ wordings to measure students' perceptions of learning in their major subject as a whole, which consists of a number of courses. Some wordings were also tailored to suit a Finnish university environment and avoid ambiguity on basic terms such as course/programme, term/semester, staff/teacher and work/assignment.

The modified ETLQ comprised three major subsections. The first contained 40 items, which assessed students' perceptions of their teaching-learning environment (see Appendix 1, Section B). The students responded to the items on a scale of 1 (disagree) to 5 (agree). The second section was the Approaches to Studying Inventory (ASI) (see Appendix 1, Section C). ASI contains 18 items with five-grade Likert scales used to measure how the students have gone about their learning. ETLQ has been validated and tested in Finland and the UK (Parpala & Lindblom-Ylänne, 2012; Parpala et al., 2013). Furthermore, ASI has been used in group comparisons (Sun & Richardson, 2012), and the structure of the surface and deep approaches to learning have been replicated internationally. Several studies have also supported the meaningfulness of the domain of organised study, which includes students' effort and time management (Asikainen et al., 2014; Hailikari & Parpala, 2014). A study which used an earlier version of ASI has presented a similar model for Hong Kong and UK students (Sadler-Smith & Tsang, 1998).

The subsequent section of the survey had two single-item measures on students' self-assessed study success and stress. One item – 'How well do you think you are doing in your overall programme as a whole?' – measured the perceived study success on a scale from 1 (rather badly) to 9 (very well). Then, a

stress scale – 'Stress means a situation in which a person feels tense, restless, nervous or is unable to sleep at night because his/her mind is troubled all the time. Have you felt this kind of stress recently?' (Elo et al., 2003) – rated students' stress levels with a scoring system from 1 (not at all) to 9 (very much). The instrument also elicited information on the students' country of origin, faculty, age and total length of stay in Finland.

5.2.2 Studies III and IV: Survey for doctoral students

The survey for the doctoral students included Likert-type statements, open-ended questions and background questions (see Appendix II Section C, also Saari & Moilanen, 2012). Before the implementation, the survey was validated in a pilot study with the help of 20 doctoral students from different disciplines. The survey took about 20 minutes to complete. To explore factors enhancing or impeding students' academic engagement, Study III focused on two open-ended questions asking the students to: (1) 'name the three most important factors that have contributed to the progress of your postgraduate studies and doctoral dissertation', and to (2) 'name the three most important factors that have hindered the progress of your postgraduate studies and doctoral dissertation'. The study also measured students' satisfaction with their studies using six Likert-type statements ranging from 1 (fully disagree) to 5 (fully agree) (See Appendix II, Section E) and one general satisfaction evaluation item: 'Please assess the level of your satisfaction with your doctoral education' on a scale from 1 (very dissatisfied) to 5 (very satisfied). Study III used a combined mean score as a satisfaction scale. In addition the survey asked if a student had considered withdrawing from enrolment – 'Have you considered withdrawing from your doctoral studies?' These scales were used as indicators of students' emotional engagement in their studies.

Study IV assessed students' emotional engagement in the doctoral process by using 20 Likert-scale items on satisfaction with their experiences and practices in their scholarly community (See Appendix 2, Section D). The single general satisfaction evaluation scale used in Study III was also employed to measure the level of overall satisfaction with doctoral education. The students also rated the intensities of their motivation and their reasons for embarking on a doctoral degree with 14 Likert-scale items (See Appendix 2, Section B). They graded the items by responding to 'which factors have affected your motivation to engage in doing a doctoral degree?' according to a scale from 1 (not important) to 5 (very important).

All students at the university can use the university's computers and are given e-mail accounts. The survey system presented all items on one page so that the students could go over their own previous responses before their answers were

reported to the database. The online process allowed the studies that make up this doctoral thesis to access a larger group of students who resided on different university campuses. Compared to paper-based surveys, the online process could avoid researchers' data-coding errors in digitising processes for analyses (Bartell & Spyridakis, 2012). Furthermore, anonymous online surveys can lessen the effect of social desirability bias (Joinson, 1999); survey respondents may respond to items in a manner that they consider to be good. Social desirability bias is less evident than in paper-based surveys, which respondents answer alone and can review their own responses later before sending to the data base (Richman et al., 1999).

5.3 Analyses

5.3.1 Differences in cognitive engagement between various Bachelor's and Master's groups

Studies I and II conducted an exploratory factor analysis (EFA) to determine whether a factor construct of ASI dimensions (Studies I & II) and the teaching-learning environment dimensions (Study II) could be replicated as found in the literature for the diverse student sample of this thesis (SPSS ver. 18). Several different methods, including the Kaiser criterion, the scree test, parallel analysis, and Velicer's MAP criteria (R ver. 3.0.2), helped infer the number of factors (O'Connor, 2000). Items with factor loadings lower than .30 and those with communalities lower than .30 or greater than 1.0 were eliminated (Fabrigar et al., 1999). An extraction method was principal axis factoring because it tends to generate more factorial dimensions (de Winter & Dodou, 2012), which was in line with these studies' exploratory purpose. It also has the advantage of having no distributional assumptions (Fabrigar et al., 1999). The EFA used a promax rotation owing to the anticipated correlations between the elicited dimensions (Fabrigar et al., 1999). To achieve more convincing factor interpretations, more than two items were loaded on per factor (Fabrigar et al., 1999). Cross-loading items were excluded. In determining the number and names of factors, theoretical conceptualisation in the literature has also been referred to.

The mean scores of the factors were used as scales, and those of both ASI and teaching-learning environment dimensions were compared using European and Asian students (Study I), while those of the ASI factors were compared using Chinese and the other international students (Study II). The two-sample, two-tailed t-test adopting Cohen's (1992) δ statistic of effect size examined the size of the differences between the groups (significance level 5%).

Study I in particular examined the relations between the factors in the students' teaching-learning environment, cognitive engagement and emotional

engagement. The scales of approaches to learning and studying were represented as dimensions of students' cognitive engagement in their studies, and their perceived stress and study success scales were employed as representative dimensions of their emotional engagement. Applying a path analysis (AMOS ver. 18.0), hypothesised paths were drawn as an initial model from all factors of the teaching-learning environment to those of the approaches to learning and studying, and from all of these factors to study success and stress scales. The following analyses refined the model, firstly by adding possible paths which may reasonably explain the associations, referring to modification indices greater than 10. Secondly, Wald tests left out several paths. The test indicates whether any path deletion results in a non-significant difference in the amount of information explained by the models. As a good model fit for the data, this study used criteria including the goodness-of-fit statistic (GFI), the comparative fit index (CFI), the Tucker-Levis index (TLI) greater than .95, and the root mean square error of approximation (RMSEA) of .06 or lower (Hu and Bentler 1999).

Afterwards, a hierarchical multiple-group analysis assessed whether the model could effectively explain the data of different groups, i.e. the European and Asian students. The analysis determined whether the hypothesised model was consistent by imposing some constraints on the models between different groups. By so doing, a more economical (statistically parsimonious), yet more informative model is explored.

5.3.2 Exploring factors affecting doctoral students' engagement in studies

Study III included two analytical phases. Firstly, the content analysis (Elo & Kyngäs, 2008) examined students' open-ended answers to engaging and disengaging experiences in their doctoral studies (ATLAS.ti ver.6). The answers were coded into several subthemes and then into a few major themes, which included similar sub-themes (Elo & Kyngäs, 2008). Of the responses, 14 were too ambiguous to classify, and they were excluded.

Secondly, analyses were conducted to explore the associations of engaging and disengaging factors with the levels of students' satisfaction with their studies and whether they had ever thought of dropping out of their doctoral studies. Multiple linear regression analysis attempted to explain associations of students' engaging and disengaging experiences with the levels of their satisfaction with doctoral education (SPSS ver. 18.0). Logistic regression analysis determined whether any student's engaging and disengaging factors (reported or unreported dummy variables) could explain whether or not he or she had considered abandoning doctoral studies. In addition to these factors as independent variables, further variables for the analyses included students' gender, university

faculties, student status (full- or part-time), doctoral thesis format (monograph, article-based, or undecided), research work status (independent, group, or independent-group combined manner). These independent variables were also coded as binary dummy variables, for example, female (1) or not (0), Faculty of Arts (1) or not (0), Faculty of Medicine (1) or not (0), and monograph (1) or not (0). Study III meaningfully combined qualitative and quantitative data. According to Creswell and Clark (2011), Study III is considered one type of mixed method research.

5.3.3 Differences in emotional engagement between domestic and international doctoral students

Using exploratory factor analysis (EFA), Study IV generated scales for students' motivation to undertake doctoral studies and on satisfaction with their doctoral study experiences. The survey items were subject to EFA with a list-wise deletion of missing cases (maximum likelihood extraction). Promax oblique rotation solution was chosen, since factors were considered to correlate with each other (Fabrigar et al., 1999). To estimate the number of factors, the Kaiser criterion, the scree test, parallel analysis and Velicer's Minimum Average Partial criteria were again scrutinized as had been done in Studies I and II (R ver. 3.0.2). In order to obtain factors with fairly relevant items, some items were dropped, owing to very low communalities far below .20. All factors consisted of at least three items for better interpretation of factor names (Fabrigar et al., 1999). All items had factor loadings of .30 or higher. Mean scores of the factors were used as scales in the subsequent clustering analysis.

Previous studies have often used a priori classification, for instance, 'domestic' and 'international' students. However, Study IV presents more data-driven and person-oriented clustering results, which has been somewhat overlooked in comparative studies of different student groups. The major reason for this individual focus was that one study (Stubb et al., 2014) has indicated that there may be large individual differences in reasons for embarking upon doctoral studies. A model-based clustering analysis assumes that several different subgroups with different characteristics constitute data. The number of groups is not directly given a priori, but is inferred from data subgroups as latent classes. The Mclust package (ver. 4.3) (Fraley et al., 2014) in the R environment suggests which model with the estimated number of clusters is best fitted to the data. The best number of clusters is statistically estimated by the maximum Bayesian Information Criterion (BIC) index (Fraley & Raftery, 2007). The students were assigned to the cluster to which they most likely belonged based on their motivation scale scores. Each cluster was labelled with the means of its motivation scales. Given that domestic and international students had different

orientations in their motivations for undertaking doctoral study, the students should be scattered among the clusters in different ways.

To test this idea, chi-square analyses with Cramer's V were used to determine whether the two student groups were distributed similarly among the clusters (significance level 5%). The analyses were complemented by adjusted residual analyses, which identify the locations of significant pairs of figures on certain variables.

The final task in Study IV was to examine whether the intensities of students' satisfaction with their doctoral studies differed among different motivation clusters. Analysis of variance (ANOVA) was conducted to examine the differences using R ver. 3.0.2 (significance level 5%). The study also used Welch's ANOVA to analyse the differences, as it does not require equal variances and sample sizes (Tomarken & Serlin, 1986). The Games-Howell method was used for post hoc comparisons, as it can be applied to samples with unequal sizes and variances (Armstrong et al., 2000). Eta squared (η^2) was calculated as the index of the total variance accounted for by a main effect. The criteria were .01 = small effect, .059 = medium effect and .138 = large effect (Cohen, 1988). By using the same procedures, the scale means between domestic and international students were also compared.

5.3.4 Differences in students' extreme response styles

Researchers have called particular attention to respondents' styles in comparative studies (Kember & Gow, 1991; Marambe et al., 2012; Richardson, 2004). For example, some students from certain backgrounds might systematically respond either more positively or more negatively to survey items (Van Herk et al., 2004). Others may choose more extreme or moderate answers on the Likert scales. However, with the exception of Sun and Richardson (2012), prior studies have not taken into account these problems in multi-group comparisons in this field. Sun and Richardson (2012) reported that Chinese students in the UK tended to choose more extreme scales than their UK domestic counterparts. Accordingly, Study II examined the tendencies of the extreme response styles of different student groups. This doctoral thesis also presents the results of focal student groups in Studies I and IV. As Sun and Richardson (2012) have done, these four studies used procedures proposed by Van Herk et al. (2004). The index of students' extreme response styles can be calculated by counting how many times students used extreme scales (i.e. 1 or 5 on the 1 – 5 Likert scale), and dividing it by the number of all the survey items. The same comparative procedures outlined above by t-test with effect sizes examined statistical differences between the groups.

6 RESULTS

The following sections present the major findings of each article. Table 6 illustrates the key engagement dimensions and factors whose relationships this thesis has attempted to explore.

Table 6. Dimensions of academic engagement and factors of interest in this doctoral thesis

Degree	Study	Engagement dimension	Factor associating with engagement
Bachelor's and Master's degree	Study I	Cognitive (approaches to learning) Emotional (self-assessed study success and stress)	Teaching and learning environment Country of origin (Europe & Asia)
	Study II	Cognitive (approaches to learning)	Country of origin (Chinese & other international students)
Doctoral degree	Study III	Engagement in general Emotional (study satisfaction, thought about quitting studies)	Environment factors Personal factors
	Study IV	Emotional (study satisfaction)	Motivation and reason for embarking a doctoral degree Country of origin (Finnish & international students)

6.1 Factors associated with cognitive and emotional engagement of Bachelor's- and Master's- level students (Studies I & II)

In Studies I and II, based on the examination of the indexes of Kaiser's eigenvalues, scree test, the MAP and parallel analysis, two to six factors were sought for the dimensions of students' perceptions of their teaching-learning environment, with EFA used in an attempt to achieve a theoretically-sound model. A four-factor solution was selected, and the factors were labelled based on the items included: *Teaching for understanding* (F1: Cronbach's $\alpha = .95$), *Organisation and alignment* (F2: $\alpha = .86$), *Purposeful course assignment* (F3: $\alpha = .86$), *Supportive climate* (F4: $\alpha = .73$) and *Relevance and interest* (F5: $\alpha = .75$).

The inventory of approaches to learning and studying was also subject to the equivalent EFA. A four-factor solution was proposed by the Kaiser criterion and a three-factor solution by the scree test. Both parallel analysis and Velicer's MAP criteria agreed on a one-factor structure. Therefore, a factor solution with one to four factors was explored, and the EFA ended up with a model having three factors for approaches to learning and studying. The factors were labelled *Deep*

approach (F1: α =.77), *Organised studying* (F2: α =.73) and *Surface approach* (F3: α = .64) as proposed by Entwistle et al. (2003).

Table 7. Correlations between students' perceptions of the teaching-learning environment, approaches to learning, study success and stress

	Scales	2	3	4	5	6	7	8	9	10
1	Teaching for understanding	.742*	.789*	.427*	.715*	.278*	.234*	-.212*	.268*	-.233*
2	Organisation & alignment		.651*	.334*	.675*	.184*	.124*	-.265*	.310*	-.288*
3	Purposeful course assignment			.456*	.570*	.334*	.269*	-.204*	.303*	-.208*
4	Supportive climate				.296*	.181*	.159*	-.134*	.214*	-.208*
5	Relevance & interest					.336*	.221*	-.295*	.318*	-.245*
6	Deep approach						.477*	-.262*	.342*	-.045
7	Organised studying							-.212*	.359*	-.011
8	Surface approach								-.213*	.128*
9	Study success									-.166*
10	Stress									

Note. *p < .05

Correlation analysis showed that overall the coefficients of factors measuring the students' experiences of their teaching-learning environment were all significant and mostly high (Table 7). The correlation between the *deep approach* and *organised studying* was positive, but the *surface approach* was negatively related to the *deep approach* and *organised studying*. The *surface approach* was negatively correlated with all scales, with the exception of stress. Study success was negatively associated only with the *surface approach* and stress. The coefficients of stress with the dimensions of the teaching-learning environment were weak, but mostly significant. *Stress* also correlated positively with the *surface approach*, and negatively with study success.

The ten scales were computed into a structural equation model, and the final model fit the data well (χ^2 (13) = 25.12, p = .022, CFI = .981, GFI = .981, TLI = .959 and RMSEA = .055) (Table 8 and Figure 2). Three dimensions of the teaching-learning environment – *organisation and alignment* (β = .161), *purposeful course assignment* (β= .123), and *relevance and interest* (β = .102) – were significantly associated with *study success*. Furthermore, *study success* was most strongly related to *organised studying* (β= .241) and secondly with *deep approach* (β = .181). *Organisation and alignment* was a single significant scale associated with *stress* among other things, and its association was negative (β = -.288). The *surface approach* was solely associated with *relevance and interest* (β = -.295). *Purposeful course assignment* (β = .300) and *relevance and interest* (β = .317) in the teaching-learning environment were suggested as exerting a positive influence on students' *deep approach*. However, *organisation and*

alignment showed a negative association with the *deep approach* (β = -.225). *Organised studying* was mostly associated with *purposeful course assignment* (β = .285).

Table 8. Total effects between scales of teaching-learning environment, approaches to learning, stress and study success

	Deep approach	Organised studying	Surface approach	Stress	Study success
Organisation & alignment	-0.16 (-0.225)	-0.18 (-0.185)		-0.754 (-0.288)	0.267 (0.161)
Purposeful course assignment	0.235 (0.3)	0.305 (0.285)			0.224 (0.123)
Relevance & interest	0.228 (0.317)	0.181 (0.184)	-0.296 (-0.295)		0.171 (0.102)
Deep approach	- -				0.422 (0.181)
Organised studying		- -			0.411 (0.241)

Note. The unstandardized coefficients are given first, and standardized coefficients in brackets.

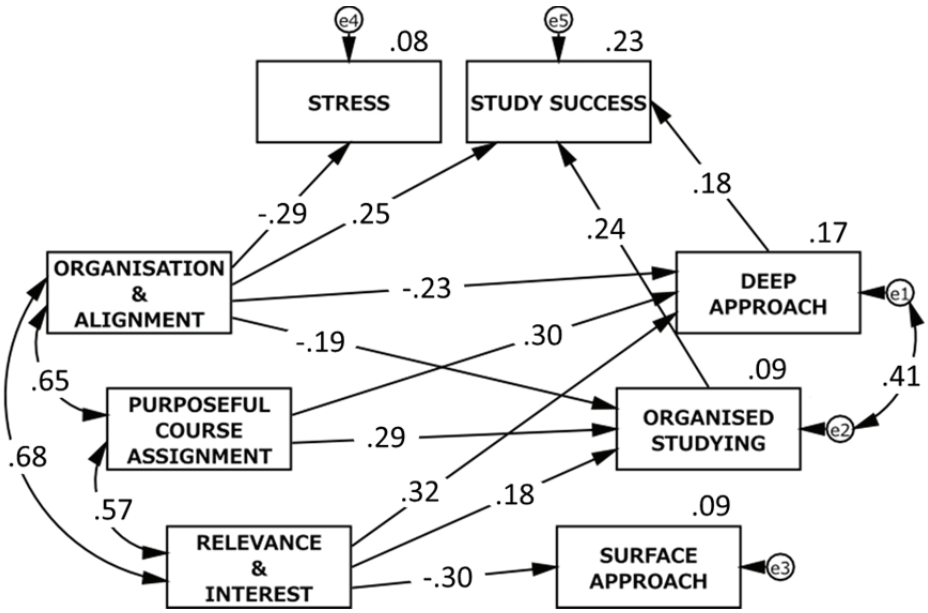

Figure 2. Standardised parameter estimates of the final path model

The *organisation and alignment* scale had negative associations with the *deep approach* and *organised studying*. However, the correlation analysis results in Table 7 presented positive coefficients. Hence, the direct negative path associations might be cancelled out by the stronger indirect associations via the other two dimensions in the teaching-learning environment as confounding factors.

6.1.1 Comparison of different student groups pursuing Bachelor's and Master's degrees

Using the association model obtained above, subsequent analysis examined whether the model suited the two major international student groups, the European and Asian students at the University of Helsinki. The results showed that there were no significant differences in the regression weights of the model between the two groups. However, there were some significant differences with small effect sizes over the scale means of the teaching-learning environment and the approaches to learning (Table 9):

Table 9. The mean scores of the dimensions of the teaching-learning environment, approaches to learning, study success and stress

	European n = 161		Asian n = 93				
Scales (1 to 5 unless specified)	M	SD	M	SD	**p**	**δ***	**Power**
Teaching for understanding	3.65	(0.73)	3.87	(0.79)	.021	0.28	57.2%
Organisation & alignment	3.78	(0.75)	3.74	(0.90)	ns	0.05	6.7%
Purposeful course assignment	3.79	(0.71)	3.96	(0.78)	ns	0.23	42.1%
Supportive climate	3.78	(0.81)	3.79	(0.90)	ns	0.01	5.1%
Relevance & interest	3.77	(0.75)	3.82	(0.89)	ns	0.06	7.4%
Deep approach	3.70	(0.56)	3.81	(0.63)	ns	0.19	30.6%
Organised studying	3.36	(0.87)	3.58	(0.70)	.041	0.26	51.1%
Surface approach	2.27	(0.90)	2.53	(0.78)	.018	0.32	68.7%
Stress (1 to 9)	4.84	(2.26)	4.75	(2.21)	ns	0.04	6.1%
Study success (1 to 9)	6.73	(1.23)	6.55	(1.43)	ns	0.14	18.8%
Extreme response (0 to 1)	.238	(0.213)	.251	(0.251)	ns	0.06	7.4%

Notes: ns $p > .05$; * $\delta \geqq 0.2$ (small), 0.5 (medium), 0.8 (large).

Two-sided t-tests for independent groups suggested that there were significant differences in *teaching for understanding*, *organised studying* and the *surface approach* with small effect sizes. The Asian students assessed the dimension of *teaching for understanding* more positively (M = 3.87, SD = 0.79) than the European students (M = 3.65, SD = 3.65). Furthermore, the Asian students were more significantly committed to *organised studying* (M = 3.58, SD = 3.36) and

used the *surface approach* (M = 2.53, SD = 0.78) with small effect sizes (δ = 0.26, 0.32, respectively). There was no significant difference between the groups in choosing the extreme scale options.

Study II furthermore focused on the Chinese students and compared their use of the approaches to learning and studying with the other international students (Table 10). The results suggested that Chinese students (M = 2.65, SD = 0.67) employed the surface approach to learning more than the other international students (M = 2.29, SD = 0.86), but the size of the difference was small (δ = 0.433). Although the sample of the Chinese students was not very large, the power to detect the effect size was fair (74.7%), albeit slightly below Cohen's (1992) recommended level (80%). On the other hand, there were no significant differences in the means of the *deep approach* and *organised studying*. The effect sizes were small; that is, the one for the *deep approach* (δ = 0.233) was slightly above the lowest criteria for the small size, and the one for *organised studying* (δ = 0.125) was below the small size criteria. The result for students' tendency to choose more extreme answers showed that the Chinese students were less likely to use extreme options than the other international students.

Table 10. A comparison of the mean scores of the approaches to learning and the extreme response scale

Scale (1 to 5 unless specified)	Chinese n = 43		Other international n = 264				
	M	SD	M	SD	p	δ	Power
Deep approach	3.64	(0.62)	3.78	(0.61)	.158	0.233	29.2%
Organized Studying	3.57	(0.74)	3.47	(0.85)	.448	0.125	11.8%
Surface approach	2.65	(0.67)	2.29	(0.86)	.009	0.433	74.7%
Extreme response (0 to 1)	.165	(0.222)	.271	(0.230)	.005	0.463	80.1%

Referring to the approaches to learning and studying as a form of cognitive engagement, Studies I and II explored to the extent to which different groups of international students engaged in learning. In the course of the studies, three dimensions in the teaching-learning environment – *organisation and alignment*, *purposeful course assignment* and *relevance & interest* – were identified as factors that can contribute to international students' cognitive engagement, such as deep approach to learning and organised studying. Furthermore, the results suggested that students who employed the deep approach and organised their studies well assessed their studies as being successful. The results also showed that the differences in intensities of cognitive engagement between different student cohorts remained low, although there were some statistically significant differences. The analyses of extreme response

styles for the survey of different groups suggested that Chinese students were prone to systematically use points around the midpoint of the Likert scales.

6.2 Factors affecting international doctoral students' academic engagement (Study III)

The mean of international doctoral students' satisfaction for the entire sample was 3.35 (SD = 0.84), but there was some variation among the faculties. The levels of satisfaction were highest among students enrolled in the Faculty of Agriculture and Forestry (M = 3.64, SD = 0.9). The mean of the Faculty of Law was the lowest (M = 2.81, SD = 1.51), but only eight students responded to the survey. Therefore, the results need to be considered with caution. Furthermore, one-third of the students (40) indicated that they had thought of withdrawing from their studies. Study III explored to what extent these indicators of students' engagement could be explained by students' experiences of engaging and disengaging factors.

The students reported a variety of experiences that promoted and hindered their studies: six main themes were generated (Table 11). The most frequently mentioned theme as a promoting factor concerned a scholarly community (41%) that involves supervision, academic colleagues and conferences. On the other hand, as hindering factors, the students most frequently mentioned departmental issues (34%), such as difficulties and problems in financing their studies, access to research facilities, coping with administrative duties, obtaining information, teaching and managing structural issues.

Table 11. Frequency of students' comments on promoting and hindering factors

Themes	Promoting		Hindering	
	f	%	f	%
Scholarly community	139	(41.0)	55	(19.4)
Departmental issue	68	(20.1)	97	(34.2)
Subject matter	55	(16.2)	53	(18.7)
Emotional	55	(16.2)	15	(5.3)
Cultural	4	(1.2)	31	(10.9)
Private domain	8	(2.4)	21	(7.4)
Miscellaneous	10	(2.9)	12	(4.2)
Total	339		284	

The *subject matter* included students' comments on their courses, research activities, expertise and writing. The most frequent comments were concerned with the lack of courses taught in English, which 14 students mentioned.

Students' comments about their own self-discipline, motivation and interest were classified as *emotional*. The students also mentioned cultural matters related to languages and the issues involved in being foreigners. Lack of their own command of the Finnish language and lack of accessibility to Finnish information sources were the major comments. Moreover, although several comments mentioned promoting factors in the students' *private domain*, more of the comments centred on matters that impeded study, such as the instability of the part-time student status, the difficulty in managing a balance between work and family life and problems in daily living conditions.

Based on these results, the students were coded using a set of dummy variables: '1' if they reported experiencing promoting/hindering factors in connection with each main theme, and '0' if none were reported. To determine whether international students' engagement was differently related to their experiences in supervision and scholarly communities, the *scholarly community* was divided into two: *supervision* and *collegial community* (*academic colleagues* and *conferences*). These experiences were then entered as two different independent variables.

6.2.1 Association with students' satisfaction with their studies

Using variables of whether the students commented on the promoting and hindering factors and the students' attributes (gender, faculty affiliation, student status, doctoral thesis format and research group status), multiple linear regression analyses were conducted to explain the students' levels of satisfaction with their studies. The multiple linear regression using the backward elimination, forward selection (maximum R2) and stepwise (p. < 0.05 to enter; p. > 0.10 to remove) methods led to two different sets of variables as results (list-wise deletion, n=106). Therefore, for the final model, the Akaike Information Criterion (AIC) was considered.

The final model developed with four independent variables explained 13% of the total variations in the dependent variable, which was study satisfaction (Table 12). The promoting factor of the *supervision* sub-theme (p = 0.043) was a significant factor, whereas the promoting factor of the *private domain* theme (p = 0.087) did not reach a significant level. The hindering factor in the *supervision* sub-theme (p = 0.064) was included in the final model, but the significant level did not attain the 5% level. Students in the Faculty of Arts experienced lower levels of satisfaction by 0.48 points, but the result was not significant (p = 0.096). Furthermore, students who had not decided on the format for their doctoral thesis were more likely to be satisfied with their studies than those who had decided (p = 0.046). The value of a variance inflation factor (VIF) between 1.03 and 1.11 indicated no severe problem of multicollinearity.

Table 12. Significant factors explaining students' satisfaction with their studies

					Correlation				
	β	SE	Standard-ised β	95% CI	Satisfaction	Promoting factor in supervision	Promoting factor in private domain	Hindering factor in supervision	Faculty of Arts
Intercept	3.19***	0.14		2.90-3.48	-				
Promoting factor (reported=1, not reported=0)									
Supervision	0.33*	0.16	0.19	0.01-0.64	.269**	-			
Private domain	0.55†	0.32	0.17	-0.08-1.17	.166†	.142	-		
Hindering factor (reported=1, not reported=0)									
Supervision	-0.34†	0.18	-0.17	-0.69-0.02	-.188†	-.084	-.148	-	
Faculty									
Arts (1, other faculties = 0)	-0.48†	0.28	-0.16	-1.04-0.09	-.163†	-.162†	.192*	-.090	
Thesis format									
Undecided (1, monograph /article-based = 0)	0.41*	0.20	0.19	0.01-0.81	.190†	-.036	-.120	-.015	-.138

Note. ***p < .001; **p < .01; *p < .05; †p < .10; Adjusted R^2 = 0.13

6.2.2 Association with the intention of dropping out

Using the same independent variables as in the regression analysis for an initial model, binary logistic regression analyses by forward and backward selection methods eliminated non-significant variables (p. < 0.05 to enter; p. > 0.10 to remove). All the analyses identified the same identical model (χ^2 [df = 2] = 13.6, p < 0.05), and the final model with two independent variables achieved a 69% classification accuracy of cases (Table 13). The model accounted for 15.5% of the variance (Nagelkerke R2). The Hosmer-Lemeshow Test indicated that the model fit well (χ^2 [df = 2] = 0.25, p = 0.88).

Table 13. Factors explaining students' thoughts of dropping out of their doctoral studies

	Coefficient (β)	SE	Wald	Odds Ratio	95% CI
Intercept	-1.60***	0.41	15.55		
Hindering factor in supervision (reported = 1, unreported = 0)	1.43**	0.47	9.40	4.16	1.67-10.37
Hindering factor in departmental issues (reported = 1, unreported = 0)	0.92*	0.45	4.20	2.51	1.04-6.07

Notes. ***p < .001; **p < .01; *p < .05; Nagelkerke R^2 = .155

The independent variables included in the model were the hindering factors in *supervision* (Wald = 9.40, OR = 4.16, p = 0.002) and the hindering factors in the *departmental issues* (Wald = 4.20, p = 0.040). If the students commented on problems in their supervisory experiences (odds ratio = 4.16, 95% CI: 1.67-10.3), they were 4.16 times more likely to have considered dropping out of their doctoral studies than those who had not made such comments. Moreover, an odds ratio of the hindering factors in the *departmental issues* was 2.33 (CI: 1.04-6.07). The result suggests that those who identified problems related to the departmental issues were 2.51 times more likely to have considered abandoning their studies than those who had not. No promoting factors could significantly explain whether the students had considered dropping out.

This section presented potential factors contributing to international doctoral students' engagement; more concretely stated, it has shown the levels of satisfaction with the students' studies and their considerations of abandoning those studies. The results supported implications from prior studies that positive and negative experiences with supervisors may explain the state of students' engagement in their studies. It was somewhat surprising that their experiences with peers were not associated with either satisfaction with their studies or with the potential risk of dropping out.

6.3 Differences in emotional engagement between domestic and international doctoral students (Study IV)

Prior to the comparison to be carried out in Study IV, an exploratory factor analysis (EFA) was conducted to explore major factors in the doctoral students' motivation and their reasons for embarking on doctoral study. Kaiser's eigenvalues, scree plot, parallel analysis and MAP test results suggested a model with two to five factors. After an examination of the interpretability of the factors, the final model ended up with two factors. The first included five items related to career development, salaries and qualification, and therefore was called *career orientation* (M = 3.20, SD = 1.05, α = .88). The second factor consisted of six items related to students' perceptions of their general interest in research and their major subject and was called *interest in research* (M = 3.45, SD = 0.75, α = .59).

In the same manner, the major dimensions of student satisfaction with their doctoral studies were sought by using EFA to determine between two to four factors. A factor construct with three factors was proposed. The first factor, *supervisory experience*, was formed of items about supervisory experiences, for example, feedback, the supervisor's interest, appreciation and encouragement (M = 3.52, SD = 0.98, α = .91). Six items related to the collegial atmosphere in their scholarly community, and the students' sense of belonging there loaded on the second factor, *climate in scholarly community* (M = 3.47, SD = 0.85, α = .84). The third factor had five items with some connection to practical regulations, the handling of doctoral education and acting in a research group. It was called *organisational practices* (M = 3.14, SD = 0.85, α = .81). These three factors were rather highly correlated between .597 - .660. The mean of the single item satisfaction scale was also calculated (M = 3.41, SD = 0.94).

6.3.1 Clusters according to motivational profiles for undertaking doctoral studies

According to individuals' profiles of their motivation scores, a model-based clustering analysis was carried out to form some coherent clusters concerning doctoral students' motivation for undertaking their studies. A four-cluster model best fitted the data (diagonal, varying volume and shape model, BIC = -6245.2). Students who scored high on *career orientation* were grouped in a cluster called *high career-oriented* (Figure 3). The students in this cluster rated their *interest in research* as being about average. The second cluster reached to the highest mean of the *interest in research* scale of all the clusters, and the mean of the *career orientation* was slightly above the average. The students in the third cluster, *low career-oriented*, were lowest on *career orientation*, but slightly below average on *interest in research*. The cluster of students who scored the

least on *interest in research*, but moderately on *career orientation* was classified in the *low research interest-oriented* cluster.

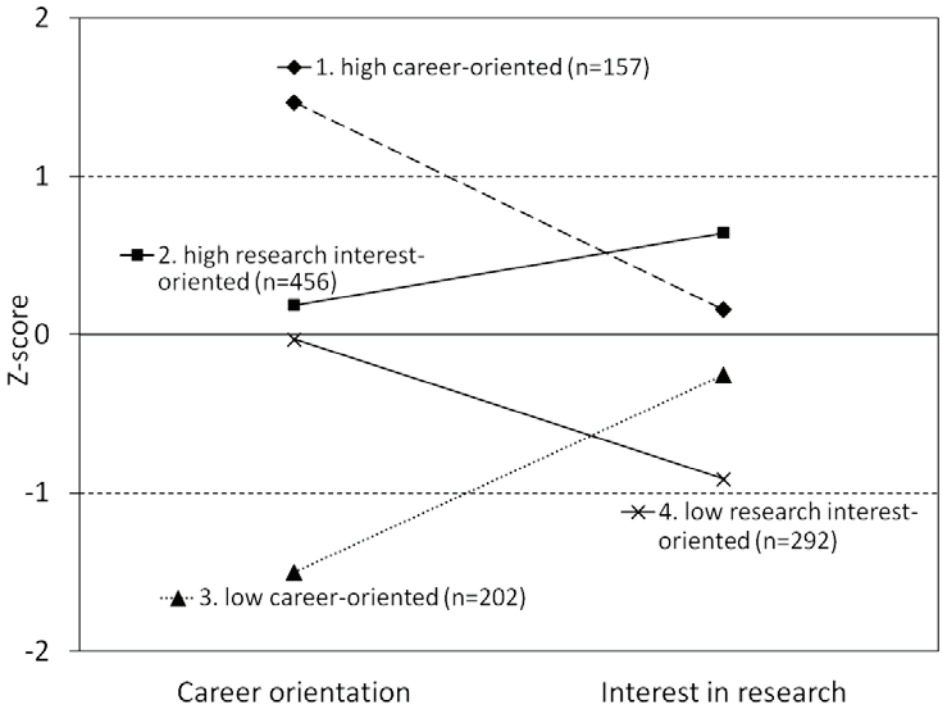

Figure 3. Standardised means of students' motivation scales over the clusters

The cluster called *high research interest-oriented* accounted for the largest proportion of the students (456: 41%), followed by the *low research interest-oriented* cluster (292: 26%). The third largest cluster was the *low career-oriented cluster* (202: 18%), and the smallest was the *high career-oriented* cluster (157, 14%).

Table 14. Distribution of domestic and international students among clusters

Student	Cluster								Total
	High career-oriented n = 157		High research interest-oriented n = 456		Low career-oriented n = 202		Low research interest-oriented n = 292		
	n	%	n	%	n	%	n	%	
Domestic	124	(12.4)*	411	(41.2)	195	(19.6)*	267	(26.8)	997
International	33	(30.0)*	45	(40.9)	7	(6.4)*	25	(22.7)	110
Total	157	(14.2)	456	(41.2)	202	(18.2)	292	(26.4)	1107

Note. *The asterisks indicate significantly more students of either group belonged to the cluster according to residual analysis ($p < .05$).

The chi-square tests indicated that there were statistically significant differences in proportions of domestic and international students across the clusters. (χ^2 =31.618, df = 3, $p < .05$) (Table 14). Cramer's V suggested a moderate relationship (Cramer's V=.17). From the residual analyses, the ratio of international students was significantly higher than expected in the *high career-oriented* cluster (adjusted residual, 5.0). In contrast, a larger percentage of domestic students were in the *low career-oriented* cluster (adjusted residual, 3.4).

The means of the satisfaction scales between the clusters were compared using ANOVA and Welch's ANOVA with Post hoc Games-Howell pair-wise tests (Table 15). The results suggested that the students' levels of satisfaction with their study experiences were not significantly different except in the *low career-oriented* cluster. This implies that the students who started their doctoral degrees without strong or even moderate intention of developing their career prospects were significantly less satisfied with their studies than the other types of students. None of the effect sizes exceeded the level of the middle size (below .059).

6.3.2 Comparison between domestic and international students

Further examinations by ANOVA and Welch's ANOVA explored differences in the mean scores of motivation and satisfaction scales between domestic and international students (Table 16). The results indicated that the international students emphasised *career orientation* for starting their doctoral studies more strongly than the domestic students (F [1,929] = 27.29, η^2 = 0.029). Moreover, the results suggested that the international students put more emphasis on *interest in research* (F [1,929] =6.89), but the size of difference between the groups (0.007) was lower than the lowest level (0.01).

Significant differences were found on two satisfaction scales: overall satisfaction ($F [1,929] = 8.40$, $\eta^2 = 0.009$) and supervisory experience ($F [1,929] = 5.09$, $\eta^2 = 0.005$). However, the indexes of the effect sizes suggested that the differences were rather small: below the criterion of the lowest level (0.01). These results imply that there were statistically significant differences between the domestic and the international students, but the differences were very small. These results also suggest that the statistically significant differences of null hypothesis testing might result from the large sample size rather than from the size of the differences.

In sum, the results showed that there were some implications that domestic and international students had different tendencies in their motivational profiles upon starting their doctoral studies, and in particular, that the international students more strongly emphasised the advantages of doctoral degrees for their career prospects than did the domestic students. There were some statistically significant differences between the levels of study satisfaction, but they were very small.

Table 15. Mean scores of satisfaction scales for each cluster

	1. high career-oriented n = 135		2. high research interest-oriented n = 402		3. low career-oriented n = 160		4. low research interest-oriented n = 234		F(3, 927)			
Scale (1 to 5)	M	SD	M	SD	M	SD	M	SD		η2	Welch F	Post-hoc comparison (η2)
Overall satisfaction	3.47	(0.90)	3.53	(0.89)	3.07	(1.13)	3.41	(0.83)	9.68*	.030	(3, 375.75)=7.17*	3<1(.037), 2(.044), 4(.031)
Supervisory experience	3.57	(0.98)	3.61	(0.96)	3.25	(1.07)	3.51	(0.94)	5.31*	.017	(3, 379.19)=4.61*	3<1(.024), 2(.026)
Climate in the scholarly community	3.54	(0.85)	3.52	(0.84)	3.23	(0.95)	3.53	(0.77)	5.38*	.017	(3, 379.52)=4.47*	3<1(.028), 2(.021), 4(.030)
Organisational practices	3.17	(0.92)	3.19	(0.87)	2.96	(0.82)	3.19	(0.78)	3.17*	.010	(3, 384.20)=3.35*	3<2(.015), 4(.020)

Note. Missing values were handled by list-wise deletion. *p < .05. Post-hoc test used Games-Howell pairwise comparison.

Table 16. Comparison of domestic and international students' mean scores of motivation and satisfaction scales

	Domestic n = 840		International n = 91		Total n = 931				
Scales (1 to 5 unless specified)	M	SD	M	SD	M	SD	F(1,929)	η2	Welch F
Motivation scale									
Career orientation	3.18	(1.04)	3.77	(0.87)	3.24	(1.04)	27.29*	0.029	(1,119.12)=35.792*
Interest in research	3.45	(0.74)	3.66	(0.79)	3.47	(0.75)	6.89*	0.007	(1,107.72)=6.172*
Satisfaction scale									
Overall satisfaction	3.38	(0.93)	3.68	(0.99)	3.41	(0.94)	8.40*	0.009	(1,107.84)=7.567*
Supervisory experience	3.49	(0.99)	3.74	(0.90)	3.52	(0.98)	5.09*	0.005	(1,114.60)=5.874*
Climate in the scholarly community	3.48	(0.85)	3.43	(0.89)	3.47	(0.85)	0.23	0.0002	(1,108.32)=0.211
Organisational practices	3.13	(0.84)	3.28	(0.96)	3.14	(0.85)	2.61	0.003	(1,105.24)=2.08
Extreme response (0 to 1)	.364	(0.186)	.393	(0.208)	.367	(0.189)	1.98	0.002	(1,106.16)=1.65

Note. Missing values were handled by list-wise deletion. *p < .05.

7 DISCUSSION

Overall, this doctoral thesis attempted to contribute to the development of an integrated model of students' academic engagement by incorporating different traditions of student learning. This thesis also tried to unify the different findings of the four studies carried out under the comprehensive umbrella of academic engagement (Fredricks et al., 2004).

7.1 Differences and similarities in academic engagement among Bachelor's- and Master's-level student groups (Studies I & II)

Based on the results of path analyses, Study I concluded that there seem to be no significant differences on the impacts of dimensions of the teaching-learning environment between European and Asian international students' cognitive engagement. However, the results did suggest that there were significant differences in students' perceptions of the dimensions of the teaching-learning environment and the approaches to learning. There was no significant difference in their extreme response styles.

The Asian students scored higher on the scales of *surface approach* and *organised studying* than the European students. The size of the differences ranged between 0.26-0.32, slightly above the benchmark of a small difference (0.2). This indicates that the students from Asian countries employed the surface approach to learning more than those from European countries, but the difference was very small. In addition, the commitment levels of organising effort and time management seemed to be higher for the Asian students with a very small difference from the European students. Further investigation showed that there was no significant difference in the *deep approach* to learning between the European and the Asian groups with an effect size below the small criteria. These results suggest that both student groups use the deep approach to the same extent.

Study II focused primarily on international students from mainland China. It showed that Chinese students' scores on the *deep approach* and *organised studying* were not significantly different from those of the other international students. The sizes of the differences were very small for the *deep approach* (0.233) and negligible for the *organised studying* (0.125). Study II furthermore focused on students' extreme response styles. The results suggested that the Chinese students had a more frequent tendency to use moderate choices on Likert scales than the other students. Both groups' mean scores on the *deep approach* and *organised studying* were higher than the mid-point of the Likert

scale. Therefore, the results of the non-significant differences between the groups can be interpreted in one of two ways. The Chinese students might in fact have used the deep approach to learning and organised their studies more effectively than the other international students. Alternatively, the non-Chinese students were inclined to choose extreme choices on the Likert scale more frequently, and thus they might not actually adopt the deep approach and organise their studies to the extent that the raw scale scores suggested.

These results support the idea that the Chinese students in Study II adopted the deep approach and organised their studies as much as the other international students did. The procedures examining students' extreme response styles did not offer the extent of extreme student response characteristics, and it is unknown to what extent the raw mean scores were influenced by the response styles. Therefore, the results do not rule out the possibility that the Chinese students may employ the deep approach to learning and put more effort and time into their studies more than the other international students. However, this assumption could not be examined in this thesis. At least, Study II did not provide empirical evidence that Chinese students were likely to dismiss the deep approach to learning. Study II also found that the Chinese students put effort into their studies and undertook time management as much as the other international students.

The mean score of the Chinese students' *surface approach* was significantly higher than that of the other international students with a small size difference. Again, the result must be interpreted by taking account of students' response styles. The mean scores of the *surface approach* for both groups were lower than the mid-point of the Likert scale. On the basis of the finding that the Chinese students used the moderate options of the Likert scale more frequently than the other students, the Chinese students might actually take the surface approach less than the scale score indicated. Alternatively, the non-Chinese international students might take the surface approach more.

Again, Study II did not offer insights into what degree the raw scores of the *surface approach* were affected by the response styles. Therefore, should the influence on the scales be trivial, the mean scores of the groups' *surface approach* remained statistically significantly different: the Chinese students adopted the surface approach more with a small difference. However, should the influence on the scales be large, it would even be plausible to assume that the Chinese students used the surface approach less than the other international students. Consequently, taking students' extreme response style into account, the finding that the Chinese students employed the surface approach to learning more than the other international students is tentative. Some previous studies have shown clearer differences between students of Asian origin and those of

other backgrounds (Leung et al., 2008; Sun & Richardson, 2012), but the findings have still been inconsistent.

Study I showed that the Asian students organised their studying more with a very small effect size than did the European students. Study II furthermore found that there was a non-significant difference between Chinese and the other international students with respect to organised studying. Previous comparative research has often used the term 'strategic approach' rather than 'organised studying' (Sun & Richardson, 2012; Zhu et al., 2008). There is no coherent trend in characteristics of different student groups' practices of organised and strategic studying. Even students in different settings have been shown to adopt organised studying to the same extent (Zhu et al., 2008). On the other hand, students in the very same educational context have been reported as organising their study very differently (Niles, 1995).

Therefore, Studies I and II coupled with prior research did not endorse the concept that Asian and Chinese students rely heavily on the surface approach and abandon the deep approach to learning. Accordingly, the biased belief that Asian students are passive and rote learners should be subject to reconsideration. Teachers' understanding of their students can undercut the potential effectiveness of students' learning. McKay and Kember (1997) and Kember (2000) have argued that teachers' beliefs about their students' learning styles may encourage them to choose specific pedagogical practices.

Study I also focused on students' emotional engagement in their studies, but did not replicate findings of some other studies of Asian students' emotional distress in study abroad experiences (Chirkov et al., 2008; Yeh & Inose, 2003). This inconsistency may be due to the characteristics of the different research locations. Many studies have focused on Asian students in countries where English is used as a native language and have consistently reported that the colloquialisms and vernacular speech of the native speakers were among their major challenges (e.g., Lu & Han, 2010). The studies included in this doctoral thesis were conducted in a teaching-learning environment in which native speakers of English were not the majority. This characteristic of the setting may have eased linguistic-related distress for the Asian students and increased the levels of their emotional engagement. Another interpretation may be related to students' language competence. Most of the students in this study (70%) were enrolled in Master's level programmes and thus might have a better command of English than students in previous studies (Chirkov et al., 2008; Yeh & Inose, 2003); those studies in fact did not report the ratio of Bachelor's- and Master's-level students.

7.2 Factors affecting international doctoral students' academic engagement (Study III)

Study III examined the factors, both engaging and disengaging, related to international doctoral students' emotional dimensions of academic engagement, such as satisfaction with their studies and thoughts of dropping out. The results supported the general understanding that supervisory experiences are associated with levels of academic satisfaction with the doctoral experience (Pyhältö, Vekkaila, et al., 2012). The students' positive experiences with supervision appeared to enhance their satisfaction with their studies. Inversely, problems in research supervision may impair satisfaction. These results confirmed the idea that developing good supervisory practices can contribute to international doctoral students' emotional engagement in academic study.

On the other hand, the results also suggest that disengaging experiences in research supervision may explain the students' past or present intention of dropping out of their study programmes. Positive supervisory experiences did not necessarily show significant associations with students who had never considered abandoning their studies. McAlpine and Amundsen (2013) describe how early career researchers, including doctoral students, go through many ups and downs in the course of their studies. Therefore, it can be assumed that, despite having positive supervisory experiences, doctoral students may also have encountered problematic situations and might have previously considered quitting. Therefore, positive factors in supervisory experiences might not automatically be associated with students who had no intention of leaving their programmes.

Appel and Dahlgren (2003) reported that insufficient supervisory meetings were a major factor impeding the progress of doctoral students' research. Study III corroborated their finding with regard to international doctoral students as well. International students are, in general, considered a highly motivated group, as they have already taken the initiative and made enormous efforts to pursue study abroad (Zhao et al., 2005). Therefore, it is essential to maintain and develop their positive motivation during their studies.

The students made many comments about both positive and negative experiences related to their scholarly communities. Study III confirmed the findings of previous studies (e.g., Austin, 2009; Fergie et al., 2011; McAlpine et al., 2009) that have emphasised the importance of doctoral students' involvement in their scholarly communities where they can obtain useful support from close peers and research colleagues. However, unexpectedly, neither positive nor negative factors were significant variables in explaining the levels of students' academic satisfaction and whether they had considered abandoning their degrees. There is no straightforward explanation for the lack of

presumed associations between these matters. Factors related to students' scholarly community may be significantly associated with other consequences of academic engagement, such as a sense of attachment to a close research group (Conrad, 2007), friendship (Ku et al., 2008) or well-being in general (Pyhältö et al., 2009), but may not be associated with doctoral students' satisfaction with their studies or their intention to drop out. An alternate interpretation may be that international doctoral students did not have close scholarly communities and therefore evaluated this factor neither positively nor negatively.

Perhaps the functionalities of scholarly communities for international students need to be re-examined at the University of Helsinki. The consensus of prior research has generally been that doctoral students' peer communities promote positive early experiences for career researchers (e.g., Fergie et al., 2011), although there are some drawbacks, such as a competitive atmosphere, intimidation by senior staff members and irrelevant assignments in the community (Conrad, 2007; Hakala, 2009; Stubb et al., 2011; Wright, 2003). Moreover, academic colleagues can include students' supervisors and peers in related fields, but international students are more likely to depend on their supervisors than do the domestic students (Blumenfield & Nerad, 2012; Deem & Brehony, 2000). This is because international students often encounter unique challenges in attempting to become integrated into their local scholarly communities (Blumenfield & Nerad, 2012; Deem & Brehony, 2000; Evans & Stevenson, 2011).

The current university reform encourages European universities to form a more inclusive institutional support system for doctoral education in contrast to the individual advisor-apprenticeship model (Kottmann, 2011). Therefore, promoting effective scholarly communities in universities and across a broad academic arena is currently a pressing need for higher education (Nerad, 2011). International students can contribute to university communities in unique ways, for instance, by introducing different scholarly perspectives, developing new ties with their home research communities and positively stimulating domestic students (Trice, 2003). By effectively involving international doctoral students in both the host university and in international scholarly communities, universities and research fields alike will benefit and prosper, and simultaneously, students themselves will develop more effectively into full-fledged researchers.

Study III showed that problems in departmental issues, such as financing their studies, research facilities and administrative duties, were related to thoughts of dropping out. Among the sub-themes in departmental issues the students most frequently reported financing problems. Currently, universities in general devote substantial effort to providing financial support for doctoral students. For international students, in particular, many universities have attempted to invite students from abroad by means of attractive financial

support strategies (Scott, 2007). Of course, as the results of Study III suggest, additional financial support may prevent international doctoral students from abandoning their studies, which would also be effective as a recruitment strategy. However, given the financial limitations in any higher educational institution, it does not seem feasible to expand financial support immediately for doctoral students. It is rather more realistic to encourage both research supervisors and students to be aware of students' basic financial situations and develop an effective working plan so that the students can complete their projects efficiently with the research subsidy that is available.

Research facilities and work responsibilities as factors in departmental issues should also be addressed. Early career researchers can be considered to be acquiring knowledge and learning behaviour that is suitable to their scholarly communities and developing as independent researchers while being involved in various activities in their communities (Lave & Wenger, 1991). Therefore, problems with research facilities and departmental responsibilities may not only impair students' study progress, but also hinder their overall development (Pritchard et al., 2009) as highly skilled professionals beyond mere research staff. Moreover, once they begin work in situations where there are problematic research facilities and responsibilities without necessary support, they may learn that the status quo is the norm in their scholarly communities. If tomorrow's researchers have learnt such things during their doctoral studies, they might not consider supporting future novice researchers who might work on their teams. This argument can certainly be applied to other types of problems in doctoral studies.

Positive factors in students' private domain contributed to their study-related satisfaction, although the number of students commenting on this factor was small. The literature on doctoral education has often pointed out the importance of a balance between students' private lives and their doctoral studies (e.g., Appel & Dahlgren, 2003). International students have to cope not only with new academic practices, but also with new family issues, including the housing environment, dietary changes and religious differences (Mehdizadeh & Scott, 2005). Hagedorn's (2012) international survey suggested that academic life contributes to university researchers' and doctoral students' perceptions of meaningfulness and happiness, but family and social commitments are more important. Perhaps, in contrast to university researchers in general, experiences and perceptions about the work balance may be peculiar to doctoral students. However, doctoral students should also be alert to the importance of maintaining a balance between their doctoral studies and private lives from the beginning of their studies.

Study III suggested that the students in the Faculty of Arts were less satisfied with their studies than those in other faculties. The number of Faculty of Arts

student respondents was small. Therefore, the results should be examined with caution. Most students in that faculty reported that they had worked on their projects individually. Considering that work with colleagues helps doctoral students proceed positively (Boud & Lee, 2005), the disciplinary characteristics in undertaking their project might be associated with the result.

Moreover, the students who had not yet decided whether they would prepare a monograph or article-based doctoral thesis were more satisfied with their studies than those who had decided on the thesis format. Eight out of 19 students who were undecided were enrolled in the Faculty of Agriculture and Forestry. The mean score of academic satisfaction in this faculty was the highest of all the faculties. Therefore, it seems reasonable to suppose that these results were interrelated, and that statistical results reflected the relationship.

7.3 Motivation to start a PhD and emotional engagement of international and domestic doctoral students (Study IV)

Study IV demonstrated two similar characteristics between domestic and international doctoral students vis-à-vis their motivation to embark on doctoral studies. Firstly, the largest ratio of both student groups was categorised in the same cluster. The students in this cluster were strongly interested in research and in their subject, and perceived the doctoral degree as moderately important for improving their future careers and development. Secondly, the domestic and international students were fairly equally satisfied with their study experiences; the levels of overall satisfaction with their studies differed significantly, but the difference was very small. The three sub-dimensions of doctoral study satisfaction indicated that the differences in academic satisfaction were below the benchmark of the lowest level or even non-significant. There results were similar to Harman's (2003), who found that more international doctoral students reported that they were content with their studies in general than domestic students. However, focusing on some sub-dimensions of their experiences, he also found that the levels of the two groups' satisfaction were not significantly different.

Furthermore, Study IV showed that more domestic students were classified in the clusters with lower satisfaction scores. The study also found that the domestic students as a coherent group were less satisfied with their studies in general than the international students, though the size of difference was still small. These results support prior findings, namely that international doctoral students appear to be more satisfied with their study experiences (Harman, 2003). However, Study III added the implication that the size of difference in overall satisfaction may not be great.

The results of Study IV are also consistent with a prior finding, which reported that international doctoral students were more inclined to value their doctoral degree for its utilitarian value for their careers than were domestic students (Harman, 2003). The international students undertook work on their degrees intending to enhance career prospects and development opportunities more than the domestic students did. Some researchers have reported that international students often emphasise the development of career prospects in their study abroad experiences, regardless of their degree level (Araújo, 2007; Delicado, 2010; Li & Bray, 2007). However, no prior studies comparatively addressed domestic and international doctoral students' reasons for undertaking doctoral studies.

Study IV suggested that students' motivational profiles for embarking on doctoral studies were related to their emotional engagement in those studies. Students with lower motivation to develop their career prospects during their doctoral studies were less satisfied with their study experiences than were the other students. Conversely, students who had moderate or higher levels of career motivation for attaining a doctoral degree were more satisfied, even though the levels of their interests in research and the subject matter were rather lower than the overall average. These results suggest the importance of enthusiasm for developing career prospects so that doctoral students can have more engaging doctoral experiences. If students are ignorant about developing themselves for better employment prospects, they may be less satisfied with their studies, even if they are interested in their research and their subjects. It should be noted that the domestic students tended to fall in the cluster of these characteristics more than the international students.

Study IV also offered empirical evidence for theoretical understanding of students' motivation and emotional engagement. The results showed that, as long as students had average or good levels of career motivation in starting their doctoral studies, they were satisfied with their studies. Even students in the highest career-orientation cluster were satisfied with their studies at the same level as the students with moderate levels of career orientation. Likewise, it was not always the case that the greater the students' interest in research became, the more satisfied they were with their doctoral studies. Therefore, the relationship between students' emotional academic engagement and their motivation for starting their doctoral studies does not seem to be linear. This finding supports the advantage of the approach used in this study. A person-oriented approach, such as that used in Study IV, sheds light on interesting characteristics of this relationship, which other linear statistical approaches could not have found.

8 GENERAL DISCUSSION

8.1 Methodological reflections

A series of statistical results in this doctoral thesis generally provided good evidence for findings in each of the four studies. However, the studies are also subject to some methodological limitations. For example, online surveys often suffer from a low response rate (Kongsved et al., 2007). Studies I and II analysed responses from 307 Bachelor's- and Master's-level international students whose response rate was 16%, and Studies III and IV were carried out with 120 international and 1,064 domestic doctoral students, who represented 20% and 29% of each group respectively. Hence, larger samples could have offered more convincing interpretations of the data from multiple perspectives. More concretely, the studies could have focused on more and different groups of students in the same Finnish educational setting. Nonetheless, the samples were generally representative of the entire student population in terms of gender, faculties and nationalities. Krosnick (1999) stresses the importance of representativeness in survey data, and argued that small samples do not always indicate poor representativeness. Additionally, the descriptive results of the doctoral student survey were presented to doctoral students and university supervisors to validate whether the results reflected the current conditions from their perspectives.

One limitation concerned the retrospective approach adopted in the four studies. Although any retrospective methods face this challenge, the students might not recall their past perceptions exactly. Study IV in particular asked the students their reasons for commencing a doctoral programme. However, at the time of this survey, the students had already been working in their programmes for some time. Therefore, the responses may not be completely accurate manifestations of their past reasons for undertaking their degrees. Of course, data could have been collected at two time points, both at the beginning of the studies and during the studies. However, collecting a good-size sample bridging the two time points would then become difficult.

Of the comparative examinations made in this doctoral thesis (Studies I, II and IV), Study II addressed a concern related to students' extreme survey response styles. It found that the Chinese students more frequently used scales far from the midpoint of the Likert scale than the other international students. In other words, there were no statistically significant differences between Chinese and the other international students' scores on the *deep approach* and *organised studying*, but considering that the Chinese students tended to use scales closer to the middle point of the Likert scale more frequently, the results

suggest that Chinese students actually used the deep approach and organised their studies even more than the other international students. Therefore, as far as students' extreme response styles are concerned, the scale of students' response styles offered a meaningful perspective in analysing the data. This doctoral thesis, additionally, analysed the characteristics of the extreme response styles of European and Asian Bachelor's- and Master's-level students (Study I), as well as domestic and international doctoral students (Study IV). These results were not reported in each article describing Studies I and IV. There were no significant differences with negligible levels of effect sizes between the two pairs.

Another typical limitation which this doctoral thesis did not address was students' acquiescent response style: some students may respond to survey items consistently positively or negatively. This problem can be dealt with by having sufficient numbers of both positive and negative polarity items, which neither survey carried out in this doctoral thesis had. Sun and Richardson (2012) used the Course Experience Questionnaire (CEQ) (Ramsden, 1991), which has both negative and positive polarity items on each scale. Essentially, given that each scale includes some positive and some negative polarity items, it is possible to determine whether the differences originate from mere survey response styles or from the phenomenon of research interest. Upon group comparison in which different response styles would be anticipated, CEQ would have been an alternative choice that could have addressed this concern. However, the emphasis of CEQ is more on teachers and teaching (Karagiannopoulou & Milienos, 2014). The present doctoral thesis was interested more broadly in students' perceptions of the teaching-learning environment. Therefore, ETLQ was the preferred choice here.

In connection with the survey items, this study used two instruments: a revised ETLQ (Entwistle et al., 2003) for the Bachelor's- and Master's-level students and the survey devised by the University of Helsinki for doctoral students (Saari & Moilanen, 2012). The concept of approaches to learning and studying has been internationally adopted, and generally the surface and deep dyad has been accepted, although there has been some disagreement about the validity of organised studying or the strategic approach (Entwistle & McCune, 2004; Richardson, 2000). Parpala et al. (2013) used ASI of ETLQ for domestic students in Finland and found the items to be valid. Earlier and equivalent versions of ASI have also been validated in Hong Kong and the UK (Sadler-Smith & Tsang, 1998), Australia (Lizzio et al., 2002), Norway (Diseth et al., 2006), Pakistan (Ullah et al., 2011), Malaysia (Abedin et al., 2013) and Greece (Karagiannopoulou & Milienos, 2014). Conversely, some improvements in the survey used for the doctoral students would be necessary, although the statistical results in Studies III and IV are acceptable. The survey items used for the doctoral students were drawn from previous international studies (Dill et al.,

2006; Swedish National Agency for Higher Education, 2006), but they have not yet been widely validated. A particular concern, for example, was the internal validity of students' motivation items. One scale, *interest in research*, did not yield a very ideal Cronbach's alpha value (α =.59). Given that quality assurance activities have prevailed in doctoral education (Byrne et al., 2013), more widely validated and internationally comparable inventories of this sort will become more valuable. A limited number of assessment tools have been developed for doctoral students, and hence testing one of these is an important contribution made by this thesis.

The present thesis has mostly relied on quantitative approaches, and the statistical models presented here could not prove direct causation. The relations could be reciprocal (Karagiannopoulou & Milienos, 2014; Richardson, 2006). For example, Study I showed that the dimension of well-organised learning content and objectives was significantly associated negatively with students' stress. However, this association might indicate that students with more stress evaluated their courses as less well organised. The distress or the well-being experienced by students during study abroad may be largely explained by their acculturation level and linguistic competencies (Dao et al., 2007; Sam, 2001). These factors might be more accountable for students' stress than other things, which may in turn affect perceptions of engagement in learning. Similarly, Study III found that the levels of international doctoral students' satisfaction with their studies could be explained by both positive and negative experiences in their research supervision. It also seems reasonable to consider that doctoral students who had more positive associations with their supervisors were more satisfied with their study experiences, which reciprocally increased the frequency of positive supervisory contact.

8.2 Further uniqueness of the study

Despite the above-mentioned limitations, there are several contributions to the literature arising from the methodological uniqueness of the present thesis and the research location. In Studies I and II, different international student groups studying in the same educational setting were included in the analyses. There have been several comparative studies on students' cognitive engagement, including the approaches to learning, which examined students who were residing in different educational settings (Leung et al., 2008; Sadler-Smith & Tsang, 1998; Zhang & Watkins, 2001; Zhu et al., 2008) and which compared domestic and international students (Niles, 1995; Ramburuth & McCormick, 2001; Richardson, 2000). However, relatively fewer studies have examined international student groups in the same educational context (Smith, 2001).

The unique emphases in this doctoral thesis also lie in the special focus on effect sizes. As Richardson (2004) argues, previous research on the approaches to learning and studying has seldom considered effect size measures. Recently, many studies have presented some measures of effect sizes in the educational sciences and psychology. According to Sun et al. (2010), about half of the research articles with null hypothesis testing in the field of education and psychology reported some effect size measures, among which more than 40% did not interpret the meaning of the effect sizes along with their results. Furthermore, even when results of null hypothesis testing and effect sizes had discrepancies, that is, statistically significant results with small or lower effect sizes, or non-significant results with medium or higher effect sizes, less than one-third mentioned these discrepancies. The larger the samples with the same size of difference, the likelier it is that statistical significances will be generated. Provided that group differences are of major research interest, effect size measures should be interpreted for validity (Richardson, 2004), and not merely presented. In this doctoral thesis the effect sizes were interpreted in a series of analyses and several statistically significant, albeit small, differences were found. These findings offer new insights for further consideration. For example, many previous studies have exclusively reported results of null hypothesis testing, but have not considered the practical importance of the differences between groups of study interests, such as which levels of differences should be worth teachers' attention in pedagogical settings. More discussion and research evidence are necessary to address whether or not the very small differences revealed in this doctoral thesis should be taken into consideration.

In addition, far too little attention has been paid to international students' perceptions of their study experiences in the Finnish teaching-learning environment. The Ministry of Education in Finland started encouraging universities to increase the numbers of their international students in the late 1980s (Garam, 2009). Indeed, some researchers in Finland have been active in studying the emerging aspects related to the globalisation of higher education by discussing a better teaching-learning environment for international students (Crawford & Bethell, 2012), thereby illustrating the positions of the English and Finnish languages in Finnish higher education (Saarinen, 2012) and extending cultural understanding related to international students' integration into Finnish society (Dervin & Layne, 2013). Further attempts to assess the effectiveness of pedagogical practices and to understand factors affecting students' engagement in their studies are certainly of great value for Finish universities, which are experiencing rapidly increasing numbers of international students. The present doctoral thesis contributes to this field. The promotion of international students' positive study experiences is perceived as imperative for universities (Li et al., 2009). The insights obtained here could be useful for teachers in facilitating

their pedagogies and for university leaders in enhancing the effectiveness of Finnish higher education. This change will further enhance the attractiveness of Finnish higher education.

8.3 Reflections on the results

8.3.1 Automatic synergy among peers and colleagues?

Prior studies have suggested that good peer relationships could result in better academic outcomes, such as self-assessed performance (Zhao & Kuh, 2004), study progression (Rytkönen et al., 2012) and cognitive academic engagement (Parpala et al., 2013). However, the results of this thesis imply that positive experiences with peers do not automatically influence increased levels of academic engagement among international students. The path model in Study I suggested that a supportive climate among peers in the teaching-learning environment had no significant associations with cognitive engagement, study success and any stress that was experienced. The results of Study III imply that doctoral students' positive and negative experiences with their peers did not have significant associations with engagement in their studies, such as the levels of satisfaction with their studies and the idea of withdrawing from their programmes.

The literature has suggested that it is challenging to design a satisfying peer-working environment for students. Summers and Volet (2008) showed that satisfaction levels with group work consistently dropped for students of diverse backgrounds working in peer groups during a semester-long group project. Gilardi and Guglielmetti (2011) found that classroom interactions could help traditional students continue university studies, but these seldom encouraged non-traditional students, defined, for example, in terms of ethnicity, age, full/part-time status, to persist in university studies.

Previous studies have suggested several reasons why international students do not benefit much from their experiences with peers. For example, challenges for Chinese students overseas often arise from experiences related to their unique pre-disposition about university learning (Wright and Lander 2003), uneasiness about their language competence and the unfamiliar academic norms in a new environment (Tian & Lowe, 2009). Moreover, international students generally appear to be perceived positively by domestic students, but the local students do not always think it necessary to make an effort to interact with the foreigners (Wu & Hammond, 2011). Another study suggested that strikingly few domestic students might enjoy benefits of interacting with international students (Grayson, 2008). On the other hand, one study reported that international students who have established positive associations with local peers were clearly

more satisfied with their study abroad experiences than those who had more associations with co-national and multi-national peers (Hendrickson et al., 2011). Therefore, positive learning opportunities among students with local and mixed backgrounds would not inherently be achieved.

The effectiveness of peer group interaction and association does not appear to be simple for doctoral students' engagement in their studies. The number of doctoral students in the same field is not usually large; they would not likely bother other colleagues' work, and some may perceive that their departments would not value student collaboration (Cotterall, 2011). However, peers are important for doctoral students in their thesis preparation (Fergie et al., 2011) and for their development as members of academia (Austin, 2009; Chang & Kanno, 2010; Pyhältö, Toom, et al., 2012). In the survey used in this doctoral thesis, international students' positive experiences with colleagues might not be frequent enough to increase levels of overall satisfaction or decrease the risks of dropping out. Moreover, many doctoral students constantly experience lonely times during their studies (Austin, 2009; Conrad, 2007; Grant & Simmons, 2008). Therefore, they might not even acknowledge the lack of interaction with peers in their scholarly community as being problematic because they might take their condition for granted. There appears to be room for improvement in developing a more engaging peer learning community.

Certainly, researchers have stressed the importance of a proactive move by international doctoral students to make themselves visible in their scholarly communities (Conrad, 2007; Leonard, 2010). Furthermore, it should also be noted that doctoral students' experiences of segregation are common among domestic students as well. Boud and Lee's (2005) study demonstrated markedly different ways of academic engagement in the case of two domestic doctoral students: the one who belonged to a funded research team project had greater access to many learning opportunities, even though the other also worked physically in the same environment. However, currently, doctoral education largely requires international students to adjust to the values and practices of the local scholarly community (Ryan, 2012). Additional strategies will be necessary to empower international doctoral students to enable them to perceive themselves as legitimate members of their scholarly community. Trice (2003), for example, revealed several major fields to which international doctoral students can contribute on the basis of interviews with faculty, ranging from sharing international perspectives on a subject matter and improving the general quality of student body to forging international ties, to name a few. The recent reform of doctoral education in the EU has shifted from the master-apprenticeship model to a more collaborative approach (Kottmann, 2011; Pyhältö, Toom, et al., 2012). Accordingly, it is important to develop a more comprehensive support atmosphere in the students' scholarly communities by

maximising the advantages of international resources rather than relying solely on the supervisor-supervisee dyad.

Another explanation for the lack of significant association between students' perceptions of peer support and positive engagement in their studies may be due to students' developmental processes or different course types between the degree levels. Karagiannopoulou and Christodoulides (2005) found an association between students' perceptions of the social climate in the teaching-learning environment and their deep approach to learning in the first-year university student data, but the association disappeared with the fourth-year student data. A more recent study by Karagiannopoulou and Milienos (2014) demonstrated that the element of peer student support had no significant associations with any approaches to learning or with the GPAs of second- to fourth-year university students. Similarly, a study in the US showed that the positive effect of small study groups of peers weakened among students from the first year to the fourth year (Pike et al., 2011). In Studies I and II, more Master's-level students participated than Bachelors'-level students. Perhaps, owing to the perception that they should engage in university learning independently or that they had become more independent, the students' ways of engaging in learning may not be significantly influenced by peer support. This explanation may be applicable to doctoral students as well, but empirical evidence is still lacking.

Taken together, positive engagement in learning would not seem to originate automatically, although this is not only the situation with international students. Often, researchers encourage university teachers to form peer-learning communities so that they can maximise their learning experiences in addition to regular classes (Tonso, 2006; Zhao & Kuh, 2004) and individual supervising (Boud & Lee, 2005; Deem & Brehony, 2000). However, it may not be always effective for international students to be without a planned course design or supervisors' individual guidance. Sweeney et al. (2008) stress the importance of teachers' preparation, explanation and justification of group activities for both domestic and international students in order to support their positive learning experiences. It is necessary for universities, teachers and supervisors to monitor how their peer-support communities functions, whether in departments, classes or research teams, in order for students to make the best use of university resources and teachers' efforts to improve the learning experiences. These continuous practices, from paving the way for effective teamwork to constant monitoring, will be an ongoing process that ensures the quality assurance system in higher education learning communities.

8.3.2 Are small differences meaningful for pedagogy?

Several statistically significant differences were found between the pairs of focal groups in the four studies, but the sizes of the comparative differences were consistently small. In addition, Study I showed that the potential impacts of some dimensions of the teaching-learning environment were not statistically different between the two major groups of international Bachelor's- and Master's-level students, namely European and Asian students. The results of Studies I and II furthermore suggested that students' use of approaches to learning and studying significantly differ statistically between European and Asian international students and between Chinese and the other international students, but the sizes of the difference were small. Study I further revealed that there were small differences between the Europeans and Asians in the students' perceptions of their teaching-learning environment. With regard to the domestic and international doctoral students, Study IV demonstrated some statistically significant differences in levels of motivation for undertaking doctoral studies and in satisfaction with the studies. However, taking the sample sizes into account, these statistically significant results require further consideration. This is because it is still unknown what size difference is meaningful in a practical sense in the field of student academic engagement. It is necessary to discuss the practical importance of differences in comparative studies, depending on the field of study (Sun et al., 2010).

If there are no criteria in a given research field, then Cohen's benchmarks are useful (Sun et al., 2010). Perhaps small sizes of difference may not have serious consequences for students' short-term learning outcomes. However, students pursue university studies over several years, and doctoral students in particular spend rather a long time in their programmes. Therefore, it seems plausible that a small size effect can lead to meaningful consequences for learning outcomes in the long run (Prentice & Miller, 1992). Small differences may be worth noting for teachers and universities so that students can engage in their studies positively in moving successfully towards degree completion. The results of Studies I and II found that Chinese and Asian students' scores on the *surface approach* was higher with small differences than the European and other international students. Conversely, scores on the *deep approach* were on the same level. Study I, in addition, suggested that Asian students organised their studies more efficiently than European students. Study IV showed a significant difference with a negligible difference size between the academic satisfaction levels of domestic and international students. A more important finding is that doctoral students, both domestic and international, were classified in four subgroups with conspicuously different distributions. However, these results only provide

collective group information about the responses of students at different developmental stages of their studies.

Considering group differences thus poses an additional question. Do these small levels of difference continue throughout the students' academic studies, or do the differences become greater at certain points in a university degree, whether at the beginning, the middle or the end? This question is related to whether or not certain groups of students experience more or less engaging encounters at some point in their university studies. Moreover, a further question emerges concerning the process of student academic engagement. It is completely unknown whether there are different phases of academic engagement during study for a degree. Research on this question will be useful for intervention purposes: traditionally, more efforts on international student orientation activities are currently placed at the beginning of the studies. Of course, domestic students will also benefit from knowing when to expect a particularly less engaging period in their academic education.

8.3.3 Distributions rather than different mean scores between groups?

Studies I, II and III dealt with student groups as somewhat consistent, monolithic bodies. As many researchers agree, those groups consist of subgroups of individuals (Smith, 2001). In this regard, Study IV produced particularly interesting findings. The levels of academic satisfaction and motivations to embark on a PhD degree did not differ appreciably between domestic and international students as a whole. However, the students in these groups could be differentiated and categorised into sub-clusters with different motivational profiles. More domestic students were classified in the cluster in which the students did not value very highly improving their career prospects by getting PhD degrees. The results suggested that these students were less emotionally engaged in their studies. Indeed, some international doctoral students also exhibited the same attitude. However, Study IV provided a more plausible and economical picture of doctoral students. Its results may suggest that handling domestic and international students as consisting of several sub-groups may have meaningful implications when the characteristics of international students are contrasted with those of domestic students. Further insightful findings might emerge if subgroups of Bachelor's- and Master's-level students were to be explored and analysed in such a manner.

The results also suggest an additional perspective on enhancing the quality assurance system in higher education. By using a data-driven approach rather than focusing on students' *a priori* attributes, such as international and domestic student classification, the present thesis has shown interesting different characteristics among the student groups. Using data-driven

approaches to explore students' characteristics may provide a new look at academic engagement and disclose hidden groups of students who experience problems and need support to improve their academic engagement.

8.4 Theoretical implications

In general, recent researchers have regarded students' academic engagement as a three- dimensional multi-construct, which includes behavioural, cognitive and emotional dimensions (Axelson & Flick, 2011; Harrison, 2013; Kahu, 2013). Nonetheless, a comprehensive inventory of students' academic engagement has not yet been drawn up for higher education. In the fields of secondary and primary education, researchers have developed engagement inventories consisting of three dimensions of engagement. They have reported that the three-dimensional construct fit their data well at the primary level (Kong et al., 2003) and at the secondary level of education (Archambault et al., 2009; Wang & Holcombe, 2010). Other studies have focused on the emotional and cognitive dimensions of secondary school students (Appleton et al., 2006), and on emotional and behavioural dimensions of primary school students (Skinner et al., 2008). By contrast, no studies to date have examined the validity of the three-dimensional construct of engagement based on empirical evidence in higher education.

The inventory employed by a series of extensive studies (e.g., Kuh, 2009; Pike et al., 2011; Zhao et al., 2005) contains a few items related to students' cognitive dimension, but the items mostly centre on the students' behavioural dimension (McCormick et al., 2013). The most recent version in 2014 does not cover items related to students' time and effort management in learning, and items relevant to students' cognitive engagement are still few. There is, in addition, a study which defined the concept of engagement from an emotional perspective in higher education: "vigor, dedication and absorption" (Schaufeli, Martínez, et al., 2002, p. 465; Schaufeli, Salanova, et al., 2002). In particular, research on university students' emotional engagement, including their academic satisfaction, feelings of belonging and well-being has been on the rise (Heikkilä et al., 2012; Pyhältö et al., 2009). Together these studies may provide a combined three-dimensional form for an academic engagement inventory for higher education. At the doctoral level, studies have shown that student well-being during the academic study was related to perceptions of being a member of scholarly community, experiencing meaningful learning processes (Pyhältö et al., 2009; Stubb et al., 2012) and having the support of the graduate school (Mittal & Wieling, 2006). These studies can offer potential ingredients for under-researched emotional dimensions of student academic engagement in higher education. Moreover, the series of studies that make up this doctoral

thesis presented potential measures and a research framework, all of which are useful for the understanding and enhancement of university pedagogy.

For this purpose, further elaboration of the definition of academic engagement is necessary. Undeniably, even in this thesis, there were fluctuations in the use of terms. For example, Study I dealt with students' stress and self-assessed study success as separate, soft outcomes of student academic engagement (Lizzio et al., 2002). However, academic engagement has now been considered a combined meta-construct that is both a process and an outcome (Kahu, 2013). The students in Study I were involved in their programmes of study at the time they responded to the survey. Therefore, these elements can justifiably be considered to indicate the levels of their emotional academic engagement, rather than being discrete outcomes resulting from their academic engagement in their studies.

8.5 Educational implications

The term 'self-fulfilling prophecy' (Merton, 1968) means that individuals set their expectations and then tend to behave in way that actualizes these expectations. Teachers' pedagogical designs can be influenced by biased concepts of students (McKay & Kember, 1997) and eventually result in students not making the most of the educational opportunities in the higher education teaching-learning environment. There was a prevalent misconception enduring into the mid-1990s that maintained that Chinese or Asian students learned by rote (e.g., Chow, 1995; Martinsons & Martinsons, 1996). However, the literature review for this doctoral thesis implies that researchers have generally reached the consensus that Chinese and Asian students are as competent learners as other students in universities (Kember, 2000, 2009; Leung et al., 2008; Watkins et al., 1991). The results of Studies I and II also generally supported this argument by demonstrating that there were no considerable differences between student groups in the same educational setting.

It is highly important for teachers to reflect on their own beliefs about students (Hackman, 2005; Ramachandran, 2011) because higher education today is increasingly diversified. Not only the number of international students, but also the number of non-traditional students, including physically handicapped students, part-time students, adult students and ethnic minorities, have expanded rapidly. Today more and more teachers encounter a variety of students rarely seen when they themselves were studying. Institutions of higher education are expected to facilitate engaging learning experiences for all students (Carini et al., 2006). Thus, the empirical evidence presented in this thesis should be useful in helping teachers develop an understanding of new groups of students (Vermunt et al., 2014).

Similarly, doctoral education has likewise become more diverse. Students with vastly different backgrounds pursue doctoral degrees (Grant, 2010). Universities have intensively restructured their doctoral training so that they can provide suitable educational opportunities for their students in the midst of the rapid changes ongoing in society (Heen, 2002). Furthermore, according to Hakala (2009), owing to the great transformations in doctoral education, the skills and values shared among junior researchers are unlike those among senior researchers who are well into their careers. This rapid transformation also underpins the importance of deepening the understanding of current doctoral students' engagement in their studies.

Further pedagogical implications can be drawn from the findings of this doctoral thesis. Zhao and Wildemeersch (2008) emphasised that international students particularly benefit more from working in a small group of mixed nationalities rather than in a large cohort of students. However, positive synergy with peers in a learning environment does not automatically evolve, regardless of the degree level. This finding has substantial implications for university teachers who wish to promote the academic engagement of their international students by increasing interactions among their peers and colleagues. As Sweeney (2008) advised, teachers' preparation and justification for group work are needed for students to understand how important and prevalent group work is in international society. Moreover, even though doctoral students are expected to become independent researchers, efforts by supervisors and the university community to create and support an arena for students to work together would facilitate students' engagement with their peers and colleagues. Furthermore, especially in doctoral education, it is essential that students find their education meaningful for better career prospects, not merely for their interest in research and the subject matter. It is extremely important that doctoral students have opportunities to consider positive visions of their future through individual supervision and career development seminars, especially as they tend to concentrate unduly on their day-to-day research within a very tight time frame, often accompanied by stressful financial responsibilities.

8.6 Future study

On the basis of the findings of the individual articles that make up this doctoral thesis, several directions are possible. Exploring international students' association with peers and colleagues is worth further investigation. The literature has suggested potential impediments to international students' general study experiences. However, it is still unclear, given these unique characteristics, just how international students' experiences with peers and colleagues in such areas as group work, mutual support and scholarly community membership

could be effective for learning and development, and why. The results of this thesis, which suggest that there were no outstanding effects of peer relations on academic engagement, imply that there are factors and processes involved in academic engagement that are still hidden. More in-depth studies are essential to ascertain the arguments and assumptions claimed in the discussion in this thesis. Many studies have reported that some international students experience difficulties becoming legitimate members of a learning community, yet it is uncertain how their challenging experiences can affect the cognitive, behavioural and cognitive engagement in their studies. These goals can be achieved by employing more exploratory research methods, such as open-ended surveys, in-depth interviews and focus groups. Moreover, it is urgent to explore intervention strategies with which international students can make the best use of learning opportunities with their peers. One study has reported that forming a student mentorship group is highly useful for encouraging the socialisation of international doctoral students (Ku et al., 2008), but more investigations are valuable, particularly in faculties where more students work on their doctoral theses on an individual basis. Therefore, traditional interventions, which are often operative only at the entrance point of study abroad programmes for international students, may need to be re-assessed.

Further attempts to develop a comprehensive, yet efficient inventory of university students' academic engagement are promising for higher education quality assurance practices. It has been suggested that the concept of academic engagement is a multi-construct, offering a broad range of student learning experiences. Thus, the framework for academic engagement allowed the findings of this doctoral thesis to be situated in students' broad learning experiences for which universities must be held responsible. Once an inventory has been developed, universities and teachers can assess their pedagogical practices and effectiveness and consider proactive arrangements that make use of their resources more comprehensively. Future studies can also evaluate the institutional practices by exploring links, for example, with students' study success, progression, attrition, well-being and academic performance. To do so, an extensive literature review of studies related to the somewhat underexplored area of student emotional engagement would be a fruitful way to advance the inventory of academic engagement in higher education.

Since the association between students and their working environment constitutes a complex dynamic (Vekkaila, 2014), a more detailed examination of contextual and individual factors may also be insightful, such as campus cultures (Tonso, 2006), academic disciplinary differences (Parpala et al., 2010; Rytkönen et al., 2012) and country of origin (Sam, 2001; Zhao et al., 2005), combined with additional data-driven approaches such as those employed in this study.

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APPENDICES

Appendix 1

International Bachelor's- and Master's-Level Students' Experiences of Teaching and Learning Questionnaire

SECTION A: Background information

Please tell us about your background. Please put a cross in the box ☒ or tick the box ☑ to indicate your response. Please also fill in the blanks below.

FACULTY:

☐ Agriculture and Forestry
☐ Arts
☐ Behavioural Sciences
☐ Biological and Environmental Sciences
☐ Law
☐ Medicine
☐ Pharmacy Science
☐ Social Sciences
☐ Swedish School of Social Science
☐ Theology
☐ Veterinary
☐ Medicine
☐ Other (Please specify_____)

STUDENT STATUS:
☐ Undergraduate - Visiting or Exchange student
☐ Undergraduate - Degree student
☐ Master - Visiting or Exchange student
☐ Master - Degree student
☐ Other (Please specify_____)

PROGRAMME NAME: _____

YOUR STUDY STARTED IN:

Year 20_____ (☐ Autumn term ☐ Spring term)

MAJOR LANGUAGE OF THE PROGRAMME:

☐ English ☐ Finnish
☐ Swedish ☐ Other (please specify_____)

MONTH(S) OF STAY IN FINLAND SO FAR:_____

NATIONALITY: _____

MOTHER TONGUE: _____

AGE GROUP:

☐ under 25 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44
☐ 45-49 ☐ 50-54 ☐ 55-59 ☐ 60 or over

GENDER: ☐ Male ☐ Female

SECTION B: Approaches to learning and studying

We want to know how you study for your programme at the University of Helsinki. Please indicate how strongly you agree with each statement below, using the same scale as in the previous section.

1. I have trouble making sense of the things I have to remember.
2. I reflect on the work I have done to check my reasoning and see if it makes sense.
3. I try to understand the meaning of what we have to learn instead of repeating things.
4. I put a lot of effort into my studying.
5. Much of what I learn seems to be unrelated bits and pieces in my mind.
6. In making sense of new ideas, I relate them to practical or real-life contexts.
7. On the whole, I am systematic and organised in my studying.
8. When reading academic texts, ideas set me off on long chains of thought.
9. I look at evidence carefully to reach my own conclusion about what I am studying.
10. When I am writing and communicating ideas, I think over how well I get my points across.
11. I organise my study time carefully to make the best use of it.
12. It is important for me to follow the argument or to see the reasons behind things.

13. I tend to take course contents at face value without questioning it much.
14. I try to find better ways of tracking down relevant information in courses.
15. Concentration is not a problem for me unless I am really tired.
16. When reading, I try to find out for myself exactly what the author means.
17. I study without seeing where I am going.
18. If I do not understand things well enough when studying, I try a different approach or study method.

SECTION C: Experiences of teaching and learning

We would also like to know about your experiences of teaching and learning in your programme at the University of Helsinki. Please give your reaction by using the scale 1(disagree) - 5(agree).

1. It is clear to me what I am expected to learn in the courses.
2. The topics in the courses seem to follow each other in a way that makes sense to me.
3. We are given a good deal of choice on how we go about studying.
4. The courses are well organised and run smoothly.
5. We are allowed some choice over what aspects of course contents to concentrate on in courses.
6. What we are taught seems to match what we are supposed to learn.
7. We are encouraged to look for links between the course contents.
8. I can imagine myself working in my discipline (subject area) as it has been covered in the courses.
9. The handouts and other materials we are given help me to understand the course topics.
10. In courses, I am prompted to think about how well I am learning and how I can improve.
11. I can see the relevance of most of what we are taught.
12. We are not just given information. The teachers explain how knowledge is developed in my discipline.
13. The teaching encourages me to rethink my understanding of some aspects of the course contents.
14. The different types of teaching and learning opportunities (lectures, tutorials, labs, class discussions, group work, etc.) support each other well.
15. Plenty of examples and illustrations are given to help us to grasp things better.

16. The courses have given me a sense of what goes on 'behind the scenes' in my discipline.
17. The teaching helps me to think about the evidence underpinning different views.
18. How the courses are taught fits in well with what we are supposed to learn.
19. The teaching encourages me to relate what I have learned about the issues to a wider context.
20. The web resources provided/referred to by the staff help me to understand the topics better.
21. Students support each other and try to give help when it is needed.
22. I find most of what I have learned in courses really interesting.
23. The teachers try to share their enthusiasm about the course contents with us.
24. Talking with other students helps me to develop my understanding.
25. The teachers are patient in explaining things that seem difficult to grasp.
26. I enjoy participating in courses.
27. Students' views are valued in the courses.
28. The teachers help us to see how you think and reach conclusions.
29. I can generally work comfortably with other students.
30. The courses provide plenty of opportunities for me to discuss important ideas and topics.
31. It is clear to me what is expected in the assessed work (i.e. final exam, exercises, study diaries, essay reports).
32. I am encouraged to think about how best to tackle assignments.
33. I can see how the assignments and study activities fit in with what we are supposed to learn.
34. You really have to understand the course contents to get good marks.
35. The feedback given on my work helps me to improve my ways of learning and studying.
36. Doing assignments helps me to think about the course contents.
37. Teachers give me the support I need to help me complete assignments.
38. To do well in courses, you have to think critically about the topics.
39. Assignments help me to make connections to my existing knowledge or experience.
40. The feedback given on my work helps to clarify things I have not fully understood.

SECTION D: Stress level

Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days?

not at all			about average				very much	
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8	☐ 9

SECTION E: Overall self-evaluation

How well do you think you are doing in your overall programme as a whole at the University of Helsinki? Please indicate your perception by using the scale 1(rather badly) - 9(very well).

rather badly			about average				very well	
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8	☐ 9

Appendix 2

Questionnaire on doctoral education

SECTION A: Background information

GENDER: ☐ Male ☐ Female

AGE:

☐ under 25 ☐ 25–29 ☐ 30–34 ☐35–39
☐ 40–44 ☐ 45–49 ☐ 50 or over

FACULTY:

☐ Agriculture and Forestry
☐ Arts
☐ Behavioural Sciences
☐ Biological and Environmental Sciences
☐ Law
☐ Medicine
☐ Pharmacy Science
☐ Social Sciences
☐ Swedish School of Social Science
☐ Theology
☐ Veterinary
☐ Medicine

Year of starting postgraduate studies: _____

At the moment, I am completing my doctorate: ☐ full time ☐ part time

My dissertation will be in the form of:
☐ monograph ☐ summary of articles ☐ I don't know

SECTION B: Factors affecting motivation in doing a doctoral degree

Which factors have affected your motivation to engage in doing a doctoral degree? (1= not important - 5= very important)

1. The doctoral degree was my objective already at the beginning of Master's studies
2. I embarked on the research topic when writing my Master's thesis
3. Interest in a particular research topic
4. Interest in research in general
5. A natural continuation of previous studies or work
6. Encouragement from the academic staff

7. Encouragement by the employer or some other expert
8. Obtaining qualifications
9. Professional development
10. Improved career prospects after the doctorate
11. Improved professional status after the doctorate
12. Higher salary after the doctorate
13. Other career prospect in sight
14. Coincidence
15. Other factor, please specify: _____

SECTION C: Factors affecting the engagement in doctoral studies

Please name the three most important factors that have contributed to the progress of your postgraduate studies and doctoral dissertation.

_____
_____
_____

Please name the three most important factors that have hindered the progress of your postgraduate studies and doctoral dissertation.

_____
_____
_____

SECTION D: Experiences in doctoral education

The following section concerns supervision and the conditions of doctoral education (1=fully disagree - 5= fully agree).

1. I often receive constructive criticism for my skills and expertise
2. My expertise is put to use in the research community
3. I feel that I am treated with respect
4. I feel that the other members of the research community appreciate my work
5. I receive encouragement and personal attention from my supervisors
6. I feel that my supervisors are interested in my opinions
7. The relationships between doctoral students are marked by competition
8. I feel accepted by the research community
9. I feel appreciated by my supervisors
10. There is a good sense of collegiality between researchers
11. I feel like an outsider in my own research community

12. I can discuss openly any problems related to my doctoral education with my supervisors
13. Rights and responsibilities between me and the other doctoral students in my immediate surroundings are equally distributed
14. I receive encouragement and support from the other doctoral students
15. My research community addresses problems in a constructive way
16. I have been bullied during my doctoral education
17. I am treated equally in my research community
18. I can influence matters concerning doctoral education in my research community
19. I have the facilities and equipment I need at my disposal
20. Supervision has been based on the general guidelines for the supervision of research and studies issued by the faculty/doctoral programme

SECTION E: Evaluation of doctoral education

Assess how well the below factors have worked for you. My studies required for the doctoral degree (1= fully disagree - 5= fully agree):

1. have supported the research work conducted for the doctoral dissertation
2. have provided skills for research work
3. have provided skills for other expert assignments
4. have provided skills necessary on the labour market outside academia
5. have progressed as planned
6. are too broad in scope (no. of credits)
7. are of appropriate scope so that full-time students are able to complete the degree in four years

Have you considered withdrawing from your doctoral studies?

☐ Yes ☐ No
If yes, please state the reasons. _____

Please assess the level of your satisfaction with your doctoral education.

very dissatisfied very satisfied
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5